

# Companion for 2nd MBBS

12th Edition



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Co-author  
**Roopali Somani**



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## Question Bank

## HRMN RBNS

## Section I: General Pathology and Basic Techniques

## CHAPTER 1

## INTRODUCTION OF PATHOLOGY

None

## CHAPTER 2

CELL INJURY, CELLULAR ADAPTATION  
AND CELLULAR AGING

## Long Essays

- |                                                                                                                              |        |         |                              |
|------------------------------------------------------------------------------------------------------------------------------|--------|---------|------------------------------|
| 1. Describe the role of cyclins and RB in the cell cycle.                                                                    | —      | 25, 292 | D12                          |
| 2. Describe biochemical and molecular mechanisms of cell injury. Discuss morphological features of necrosis.                 | 11, 26 | 44, 42  | J11                          |
| 3. Compare and contrast the biochemical and structural changes in reversible and irreversible cell injury caused by hypoxia. | 12     | 50      | J14                          |
| 4. Define necrosis. Mention the types, explain the causes and pathology of each type of necrosis.                            | 26     | 41      | D14(RS3), D02, D07, D11, J15 |
| 5. Define necrosis. Enlist different types of necrosis with relevant examples. Add a note on gangrene.                       | 26, 32 | 41, 43  | D15                          |
| 6. What is apoptosis? Mention the causes and discuss mechanisms of apoptosis.                                                | 29     | 52      | J16                          |

## Short Essays

- |                                                               |    |    |               |
|---------------------------------------------------------------|----|----|---------------|
| 1. Differences between atrophy/hypertrophy/hyperplasia.       | —  | —  | J00           |
| 2. Free radical injury.                                       | 14 | 49 | J07, J08, D15 |
| 3. Role of free radicals in cell injury.                      | 14 | 49 | J00, J03, D13 |
| 4. Hyaline change (degeneration).                             | 17 | 63 | J16(RS3), J04 |
| 5. Steatosis (fatty change).                                  | 19 | 62 | J09, J16      |
| 6. Causes for fatty liver.                                    | 19 | 62 | J14(RS3)      |
| 7. Gross and microscopy of fatty liver.                       | 20 | 62 | D00           |
| 8. Morphological features of fatty change in liver and heart. | 20 | 62 | D05           |
| 9. Heart in fatty change.                                     | —  | 62 | A07           |
| 10. Pigment metabolism.                                       | 22 | 64 | D09(RS2)      |

Contd... —



Contd...

	HRMN	RBNS
11. Exogenous and endogenous pigments.	22	64 J11(RS2), D13(RS3)
12. Hemosiderosis.	23	65 D11(RS2)
13. Brown atrophy of heart.	25	64 J07(RS2)
14. Necrosis—definition, types with examples.	26	41 J08(RS2), J11(RS2), D11(RS2), J12(RS2), D13(RS3), D00, D01, J06, D08, J13, D16
15. Coagulative necrosis.	26	43 D09
16. Colliquative necrosis.	27	43 D99
17. Caseous necrosis.	27	43 A07(RS2)
18. Fat necrosis.	27	43 J12(RS2)
19. Apoptosis.	29	52 J09(RS2), J15(RS3)
20. Mechanisms (pathogenesis) of apoptosis.	30	53 D07, D09, D11
21. Define gangrene and mention the differences between dry and wet gangrene.	32	43 A07
22. Gangrene and its types.	32	43 D12(RS3), J13(RS3)
23. Dry gangrene.	32	— D03
24. Differences between dry and wet gangrenes.	35	— J14(RS3), J00
25. Pathological calcification.	33	65 A07(RS2), D08(RS2), D12(RS3), J14(RS3)
26. Dystrophic calcification.	34	65 D07(RS2), J13(RS3), D99, D01, J05, D08, J12
27. Metastatic calcification.	36	65 D15(RS3), J00, D11
28. Cellular adaptations.	37	34 J15
29. Atrophy.	37	36 J05, J07
30. Definition, types and mechanism of hypertrophy.	38	34 D08(RS2)
31. Hypertrophy and hyperplasia.	38, 39	34, 35 J10

Contd... —

Contd...

	HRMN	RBNS	
32. Hyperplasia (definition and types).	39	35	J08(RS2)
33. Metaplasia.	39	37	J07(RS2), J09(RS2), D10, D14
34. Dysplasia.	41	271	D03, J08, J11

**Short Answers**

1. Perfusion injury in ischemia.	14	51	D05
2. Antioxidants.	15	48	J09
3. Define hyaline change with examples.	17	63	J08(RS2), D16
4. Types of hyaline change with example.	18	63	J02, J03
5. Autophagy.	—	60	D10
6. Causes of fatty liver.	19	62	D03
7. Xanthoma.	21	62	J07(RS2)
8. List exogenous and endogenous pigment.	22	64	J08(RS2), D05
9. Endogenous pigments.	22	64	D08
10. Ochronosis.	22	64	D13
11. Lipofuscin pigment.	25	64	D07, D11, J12
12. Brown atrophy of heart.	25	64	D00, D08
13. Autolysis.	26	—	J07(RS2)
14. Coagulative necrosis.	26	43	D14
15. Coliquative necrosis.	27	43	J11
16. Caseous necrosis.	27	43	D04, J10
17. Fat necrosis.	27	43	J08, <u>J16</u>
18. Morphological features of apoptosis.	29	53	J01, D05
19. Morphology of apoptotic cells.	29	53	D04, D10
20. Gangrene	32	43	J16
21. Dry gangrene.	32	—	D10
22. Wet gangrene.	32	43	J12
23. Gas gangrene.	33	382	J08
24. Dystrophic calcification.	34	65	J15, J16
25. Psammoma bodies.	35	65	D11, D12
26. Metastatic calcification.	36	65	D07, D16
27. Causes of metastatic calcification.	36	65	D04
28. Hypertrophy—definition, examples. What is the difference between hypertrophy and hyperplasia?	38	34	D11
29. Hypertrophy and hyperplasia.	38, 39	34, 35	J07, J16
30. Atrophy.	37	36	J14, D16
31. Hyperplasia (examples).	39	35	D16(RS3), J08

Contd...—

Contd...

	HRMN	RBNS	
32. Metaplasia.	39	37	D13
33. Types of metaplasia with examples.	39	37	D01
34. Give three/four examples for metaplasia.	40	37	J15(RS3), J09
35. Dysplasia.	41	271	J13(RS3)

**CHAPTER 3****IMMUNOPATHOLOGY INCLUDING AMYLOIDOSIS****Long Essays**

- |                                                                                                                                   |            |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------|------------|---------------|---------------|
| 1. Classify and briefly describe hypersensitivity reactions. Describe the etiopathogenesis of systemic lupus erythematosus (SLE). | 58, 63     | 200, 218      | J13           |
| 2. Discuss autoimmunity in relation to SLE.                                                                                       | 63         | 218           | J07           |
| 3. Define and classify amyloid. Describe the physical and chemical nature of amyloid. Enumerate the special stains for amyloid.   | 66, 67, 72 | 256, 257, 260 | D09           |
| 4. Define and classify amyloidosis. Explain the gross and microscopic features of organs involved in secondary amyloidosis.       | 66, 70, 73 | 256, 259, 261 | D10(RS2), D00 |
| 5. Describe the pathogenesis, morphology and staining characteristics of amyloidosis.                                             | 69, 73, 72 | 258, 261, 260 | J09(RS2)      |

**Short Essays**

- |                                                                                                            |    |     |                                   |
|------------------------------------------------------------------------------------------------------------|----|-----|-----------------------------------|
| 1. Transplant rejection reactions.                                                                         | 50 | 231 | J09                               |
| 2. Pathogenesis of human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS). | 52 | 245 | J02, J06                          |
| 3. HIV disease and opportunistic infections (opportunistic infections in AIDS).                            | 55 | 252 | D12(RS3), J13(RS3), D11           |
| 4. Laboratory diagnosis of AIDS.                                                                           | 56 | —   | J07(RS2), D11(RS2)                |
| 5. Hypersensitivity reactions.                                                                             | 57 | 200 | D11(RS2)                          |
| 6. Type I hypersensitivity reaction (anaphylaxis)—pathogenesis.                                            | 58 | 201 | J08(RS2), J12(RS2), D04, J11, J14 |
| 7. Agranulocytosis.                                                                                        | 60 | 582 | D15(RS3)                          |
| 8. Type III hypersensitivity reaction.                                                                     | 60 | 207 | D08(RS2), J15(RS3)                |
| 9. Type IV hypersensitivity (delayed type of hypersensitivity) with example.                               | 61 | 208 | D07(RS2), J13(RS3), J04, D12      |
| 10. Pathogenesis of delayed (Type IV) hypersensitivity reaction.                                           | 61 | 208 | D09, D15                          |

Contd... —

Contd...

	HRMN	RBNS	
11. Mechanism of autoimmune diseases.	62	214	A07
12. Etiology and pathogenesis of systemic lupus erythematosus.	63	219	D05
13. Lupus erythematosus (LE) cell.	64	222	J13(RS3), D13
14. Clinical criteria and laboratory diagnosis of SLE.	64	218	J11(RS2), D13(RS3)
15. Scleroderma.	64	228	D99
16. Graft versus host reaction.	50	236	D99, J11
17. Physical and chemical nature of amyloid and the special stains for amyloid.	67, 72	257, 260	J00, J12
18. Physical and chemical nature of amyloid.	67	257	J01
19. Chemical structure and types of amyloid protein.	67	257	J09
20. Pathogenesis of amyloidosis.	69	258	D01, J14
21. Classification amyloidosis and stains used for its demonstration.	70	259	J08(RS2)
22. Staining characteristics of amyloid and its appearances.	72	260	A07(RS2), D14(RS3)
23. Special stains to confirm amyloid.	72	260	D15(RS3), D04, J11
24. Sago spleen (amyloid spleen).	73	261	J07(RS2), J10(RS2), J04, D13

**Short Answers**

1. Antiphospholipid antibody syndrome.	—	124	D12
2. Importance of toll-like receptors.	—	187	D16(RS3)
3. Central immune tolerance.	—	212	D09
4. T helper cells.	45	190	J10, J13
5. Macrophage.	46	192	J11
6. Growth factors secreted from macrophages.	47	94	D10
7. Write four diseases associated with hyman leukocyte antigen (HLA).	49	215	J07
8. Graft versus host reaction.	50	236	D08
9. Organs involved in graft versus host disease (GVHD).	50	236	D16(RS3)
10. List the population at risk of developing AIDS.	52	244	J01
11. CD4 count in AIDS.	54	251	D07
12. Name neoplastic lesions associated with HIV infection.	56	253	J12

Contd... —

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	HRMN	RBNS	
13. Four common neoplasms found in patients with HIV infection.	56	253	D05, D13
14. Malignant tumors seen in AIDS.	56	253	J05, J07
15. Opportunistic infections in HIV patients.	56	252	D02, D04, A07
16. Mention four opportunistic fungal infections in AIDS.	56	253	J08(RS2), J15
17. Enlist four most common infections found in AIDS patients in India.	56	253	D15
18. Name four AIDS defining fungal infections.	56	253	J10
19. Name the fungal infections in AIDS.	56	253	D14(RS3)
20. Enlist four CNS lesions found in AIDS.	56	255	D15
21. Types of hypersensitivity.	58	200	D14
22. Write the immune mechanism in type I hypersensitivity reaction.	58	201	J07
23. Type II hypersensitivity reaction (antibody dependent cellular cytotoxicity).	60	205	A07(RS2)
24. Agranulocytosis.	60	582	D08
25. Delayed hypersensitivity.	61	208	D08
26. Antibodies in SLE.	63	219	J04
27. LE cell and associated conditions.	64	222	J08(RS2), D12(RS3), J05, J06, A07, J08, D08, D09
28. Polymyositis.	66	1239	D13
29. Precursor proteins of amyloid.	67	257	J04
30. Mention three most common biochemical types of amyloid proteins.	67	257	J06
31. Types of localized amyloidosis.	72	260	J07
32. Special stains for amyloid and the result.	72	260	D16(RS3), J02, J03, J09, D11, D14, J15, D15
33. Spleen in amyloidosis (sago spleen)—morphology.	73	261	D02, A07, J16

**CHAPTER 4****DERANGEMENTS OF HOMEOSTASIS  
AND HEMODYNAMICS****Long Essays**

- |                                                              |    |     |          |
|--------------------------------------------------------------|----|-----|----------|
| 1. Discuss the causes and pathogenesis of generalized edema. | 80 | 113 | J16(RS3) |
|--------------------------------------------------------------|----|-----|----------|

Contd... —

Contd...

	HRMN	RBNS	
2. Classify and list the different pathophysiologic categories of edema and describe the pathogenesis of cardiac edema.	80, 84	114	D08(RS2), A07
3. A 10-year-old boy has anasarca and proteinuria. Discuss the pathogenesis of this condition.	84	914	J04
4. Define shock. Enumerate the types of shock and discuss the pathogenesis and morphological changes in shock.	94, 97, 98	131	J07(RS2)
5. Define shock. What are the different types of shock? Describe the pathogenesis of septic shock.	94, 96	131	J12(RS2)
6. Define shock and describe the pathogenesis of septic shock.	94, 96	131	J06
7. Discuss the pathogenesis of septic shock. Enumerate various stages in evolution of shock. Describe the morphological changes in various organs in shock.	96, 97, 98	131	J10
8. Define and describe the pathogenesis of thrombus. Add a note on fate of the thrombus.	99	122	J08(RS2), J11(RS2), D13(RS3)
9. Define and classify thrombosis. Explain the etiopathogenesis and pathology of thrombosis. Add a note on the fate of thrombus.	99, 104	122, 125	J03, D08, D14
10. Discuss the causes and pathogenesis of venous thrombosis.	100	122	D15(RS3)
11. Define embolism. Discuss different types of embolisms.	105	127	D11(RS2)
12. What is embolism? Mention different types of embolism with examples. Add a note on air embolism and fat embolism.	105, 107	127, 128	D16(RS3), D05
13. A 20-year-old male suffered fracture femur in road traffic accident and was treated. 2 weeks later he suddenly collapsed and died. What is the diagnosis? What are the postmortem findings relevant to the diagnosis?	107	128	D03

**Short Essays**

- |                                                                         |    |     |               |
|-------------------------------------------------------------------------|----|-----|---------------|
| 1. Difference between transudate and exudates.                          | 81 | —   | D14(RS3), D09 |
| 2. Define edema. Mention the types and write the pathogenesis in brief. | 80 | 113 | D12(RS3)      |

Contd...—



Contd...

	HRMN	RBNS
3. Nephritic (renal) edema—pathogenesis.	84	914 D02, D03, D04, J09, D10, J11
4. Cardiac edema—pathogenesis.	84	— J10(RS2), J03, D07, J08, D11
5. Pulmonary edema.	84	671 D08
6. Chronic venous congestion—liver, lung.	91	116, 671 D12(RS3)
7. Chronic venous congestion (CVC) lungs (brown induration of lungs).	91	671 D09(RS2), J10(RS2), D11(RS2), D02, J10
8. Heart failure cells.	91	671 D99, J00
9. Nutmeg liver.	91	113 D15
10. Chronic venous congestion (CVC) liver—causes, gross and microscopic features.	91	116 D10(RS2), J01, D01
11. Chronic venous congestion—spleen.	92	624 J05
12. Define shock. Discuss septic shock.	94, 96	131 J12
13. Septic shock.	96	131 D11
14. Etiopathogenesis of endotoxic (septic) shock.	96	131 A07(RS2), D11(RS2), J15(RS3), J04, J07, J08, D08, J15
15. Reversible shock.	97	133 D03
16. Fate of a thrombus.	104	125 D07(RS2), J09(RS2), J12, D12, J15
17. Embolism—types.	105	127 J16(RS3)
18. Fat embolism.	107	128 J07(RS2), J02, D14
19. Air embolism.	108	128 D10(RS2)
20. Amniotic fluid embolism.	109	129 J08
21. Infarct—types with examples.	112	129 D00, D13, J16
<b>Short Answers</b>		
1. Differences between transudates and exudates.	81	— J15(RS3), D00, D01, J06, D07, D16
2. Transudate.	81	113 J12
3. Hyperemia.	90	115 J07
4. Chronic venous congestion of lung.	91	671 J12(RS2)
5. Microscopy of CVC lung with a diagram.	91	671 A07(RS2), D08(RS2), A07

Contd... —



Contd...

	HRMN	RBNS
6. What are heart failure cells? Mention the special stain used for its demonstration.	91	671 J08(RS2), D15
7. Nutmeg liver.	91	113 D14(RS3), D04, D14
8. Microscopy of CVC liver.	91	116 D05
9. Gamna-Gandy bodies.	93	— D01, J02
10. Hematoma.	93	122 D01
11. Definition and causes of shock.	94	131 D02
12. List three major types of shock with suitable examples.	95	131 D05
13. Enumerate three major types of shock and three stages of shock.	95	131 J07
14. What is Virchow's triad?	100	122 J01, J14
15. Mention four antithrombotic properties of endothelium.	100	121 D04
16. Four causes of hypercoagulable state.	102	123 J04
17. Four primary conditions associated with increased risk for thrombosis.	102	123 J07
18. Difference between thrombus and post-mortem clot.	104	125 J09
19. Gross appearance of postmortem clot.	104	125 J06
20. Fate of a thrombus.	104	125 D03, J10, J16
21. Organization of thrombus.	104	126 D07
22. Define and list different types of emboli.	105	127 D08(RS2), D11, J12
23. Paradoxical embolism.	106	128 D01, J13
24. Decompression sickness.	108	128 A07
25. Amniotic fluid embolism.	109	129 J09
26. Define infarction. What are the different types of infarcts with common sites of occurrence.	111	129 J13(RS3)
27. Types of infarcts.	112	129 D15
28. Organs involved in pale and red infarction.	112	129 J01

**CHAPTER 5****INFLAMMATION AND HEALING****Long Essays**

- |                                                                                                           |     |            |     |
|-----------------------------------------------------------------------------------------------------------|-----|------------|-----|
| 1. Define inflammation. Mention the types. Explain the sequential vascular changes in acute inflammation. | 116 | 69, 90, 73 | J01 |
|-----------------------------------------------------------------------------------------------------------|-----|------------|-----|

— Contd... —

Contd...

	HRMN	RBNS	
2. Define inflammation. Describe the cellular changes that take place in acute inflammation?	116 119	69, 75	D09(RS2), J08
3. Define inflammation. Enumerate cellular events in inflammation and discuss in detail about phagocytosis.	116, 119, 120	69, 75, 78	J09
4. Define inflammation. Discuss in detail about chemical mediators of inflammation.	116, 122	69, 82	D08, D10
5. Describe the cardinal signs of acute inflammation. Describe bone healing of fractures in long bones.	116, 161	71, 1193	J05
6. Discuss the vascular phenomenon of inflammation.	116	73	D04
7. Describe the cellular events in acute inflammation.	119	75	J14(RS3)
8. Discuss phagocytosis.	120	78	J07
9. Define and classify granuloma. Explain the evolution, morphology and fate of tuberculous granuloma.	135, 140	97, 372	D01
10. Define granuloma. List the diseases with granulomatous inflammation. Describe the lesions in primary tuberculosis.	135, 138, 142	97, 98, 373	D08(RS2)
11. Describe the morphologic types of secondary tuberculosis.	142	375	D99
12. A 42-year-old male presented with history of fever, cough and weight loss since two months. X-ray of the chest showed cavitory lesion in right apical lobe. (a) What is your diagnosis and why? (b) Describe the etiopathogenesis of this disease. (c) Describe the gross and microscopic findings in the lung.	144	371	J14(RS3)
13. What do you understand by the terms—"healing", "regeneration" and "repair"? Describe the steps in healing by first intention.	155, 158	100, 106	J00
14. Describe the mode of healing by secondary union. List the factors which influence repair. Tabulate the difference between primary and secondary unions.	158, 160, 159	107, 105	A07(RS2)

Contd...—

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	HRMN	RBNS	
15. Compare with the help of suitable diagrams wound healing by primary and secondary intention. Discuss the factors promoting and delaying the process.	159, 160	107, 105	D12(RS3)
16. Discuss the healing of fractured bone and its complications.	161	1193	J10
<b>Short Essays</b>			
1. Granulomatous lymphadenitis.	—	—	D14(RS3)
2. Cardinal signs of inflammation.	116	71	D99
3. Vascular changes in acute inflammation.	116	73	D07(RS2), D12(RS3)
4. Mechanism of vascular leakage (increased vascular permeability) in inflammation.	117	74	J09
5. Cellular events in acute inflammation.	119	75	D08(RS2)
6. Leukocyte transmigration.	120	76	D07
7. Chemotaxis.	120	77	D15(RS3), D03, A07, J10, J12
8. Phagocytosis and killing.	120	78	A07(RS2), J07(RS2), J16(RS3), D16(RS3), J02, J04, D05, D09, J11, J14
9. Chemical mediators of inflammation.	122	82	D10(RS2), J11(RS2), D13(RS3), J16(RS3), D05, D12
10. Role of arachidonic acid metabolites in acute inflammation.	123	83	A07(RS2), D16(RS3)
11. Cytokines.	125	86	J07(RS2), D07(RS2), J09(RS2), J16
12. Free radicals and acute inflammation.	126	79	J10
13. Enlist acute phase reactants.	127	86	J14
14. C-reactive protein.	128	493	D14
15. Write about the role of macrophages in inflammation.	130	94	J10(RS2)
16. Giant cells.	130	97	D15
17. Morphological types of acute inflammation with examples.	132	90	D14
18. What is an abscess?	132	91	J14

Contd...—

Contd...

	HRMN	RBNS	
19. Mechanism of systemic effects of inflammation.	133	99	D15
20. Outcomes of acute inflammation.	134	92	J06
21. Discuss granulomatous inflammation with examples.	135	98	J13, D16
22. Granuloma.	135	97	J09(RS2), D15(RS3)
23. Morphological types of TB lung.	141	373	D16
24. Primary tuberculosis.	142	373	J11(RS2), D13(RS3), J06
25. Primary complex (Gohn complex).	142	375	D11(RS2), J00, J02, D04, D10, J11, J15
26. Tuberculoma.	142	375	J12(RS2)
27. Secondary pulmonary tuberculosis.	143	373	J15
28. Fibrocaceous tuberculosis—lung.	144	375	D05
29. Leprosy.	147	377	D12
30. Classify leprosy. Compare the major types of leprosy.	148	377	D12(RS3), D15(RS3)
31. Difference between tuberculoid and lepromatous leprosy.	148	377	J08(RS2), A07
32. Indeterminate leprosy.	149	—	J16(RS3)
33. What is the pathology of tuberculoid and lepromatous leprosy?	149	377	J01
34. Lepromatous leprosy—morphology.	149	377	D10(RS2), J04, D05
35. Tuberculoid leprosy—morphology.	150	377	J14(RS3), D04
36. Stages of syphilis.	151	379	D11(RS2)
37. Anogenital syphilis.	151	379	J12(RS2)
38. Tertiary syphilis.	152	379	D07
39. Gumma.	152	381	D01
40. Actinomycosis (histopathology).	153	—	J14(RS3), J05, J08, J11
41. Sarcoidosis.	154	693	D13
42. Repair—discuss pathological aspect.	156	100	D14
43. Granulation tissue.	157	105	D04
44. Angiogenesis (neovascularization) in repair.	157	104	D16(RS3), J07
45. Steps of wound healing.	158	106	J12(RS2)
46. Mechanism of wound healing by first intention (primary union).	158	106	D02, D08, J11, J13

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	HRMN	RBNS	
47. Healing of wound by secondary intention.	158	107	D99, J06
48. Complications of healing in skin wounds.	159	109	J14(RS3), D03
49. Factors influencing and complications of wound healing.	159	105, 109	J08(RS2)
50. Factors influencing wound healing/ process of repair and regeneration.	160	105	D10(RS2), J13(RS3), J15(RS3), D01, J03, D10, J12, D13, D16
51. Healing in specialized tissues.	161	—	D10
52. Fracture healing.	161	1193	D09(RS2), J16

**Short Answers**

1. Enlist four beneficial effects of acute inflammation.	—	69	J10
2. Granulomatous lymphadenitis.	—	—	J15(RS3)
3. Microscopy of tuberculous lymphadenitis.	—	—	J02
4. Differences between acute and chronic inflammation.	137	—	D02
5. Microscopic appearance of granuloma.	136	—	J04
6. False-positive venereal disease research laboratory (VDRL) reaction.	—	380	D12
7. Types of inflammation.	116	71	J09
8. Definition of acute inflammation.	116	73	A07
9. Three major components of acute inflammation.	116	71	J03
10. Name the cardinal signs of inflammation. What are they due to?	116	71	J00, D11
11. Cardinal signs of acute inflammation.	116	71	J08(RS2), D14(RS3), D05, D15
12. Chemoattractants in acute inflammation.	120	77	D09
13. Phagocytosis.	120	78	J16
14. Name three steps in phagocytosis.	121	78	D00, J03, D03
15. Opsonins.	121	78	D01, J04
16. Role of opsonins in inflammation.	121	78	D02
17. Name the cell-derived mediator of inflammation.	123	82	D00
18. Role of prostaglandins in acute inflammation.	124	84	D09
19. Thromboxane A <sub>2</sub> .	124	85	J04

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	HRMN	RBNS	
20. Platelet activation factor.	125	89	D10
21. Three methods of complement activation and its effector function in acute inflammation.	127	88	J06
22. Mast cell in inflammation.	129	82	D07
23. Primary mediators in mast cell granules.	129	83	J06, D13
24. Macrophage in inflammation.	130	94	D14
25. Giant cells—what are the various types of giant cells? Name them and the conditions with which they are associated.	130	97	D11(RS2), D08, D12, J14
26. List four morphologic patterns of acute inflammation.	132	90	D08(RS2)
27. Ulcer.	132	91	J07(RS2), D11
28. Outcome of acute inflammation.	134	92	J07
29. Chronic granulomatous disease.	135	97	J10
30. Granuloma.	135	98	D14(RS3), D08
31. List types of granulomas with example.	138	98	J08
32. List the histological features of chronic inflammation.	136	98	D01
33. Epithelioid cell.	136	98	D00, J03
34. Chemicals of tuberculous bacilli responsible for producing granuloma.	140	372	D03
35. Microscopy of tuberculous granuloma with a diagram.	141	375	A07(RS2)
36. Ghon's lesion (complex)—components.	142	375	J09(RS2), A07, D08, D11
37. Fate of primary complex.	142	373	A07
38. Enumerate the pulmonary lesions in reactivation tuberculosis.	143	373	J00, J03
39. Miliary tuberculosis.	144	376	D11, J12
40. Mention the pathways of spread of miliary tuberculosis.	144	376	D09
41. Classification of leprosy.	148	377	J06
42. Mitsuda reaction.	148	—	D03
43. Microscopy of lepromatous leprosy.	149	377	A07(RS2), J15(RS3), D07
44. Lepra cell.	149	377	J05, J07
45. Primary chancre.	151	379	D13
46. Secondary syphilis.	152	379	D11
47. Enumerate six lesions seen in cardiovascular syphilis.	152	379	A07(RS2)

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	HRMN	RBNS	
48. Oral lesions in congenital syphilis.	153	380	D04
49. Manifestations of tertiary syphilis.	152	379	D10, J13
50. Hutchison's triad—components.	—	381	J08(RS2), A07
51. Actinomycosis.	153	—	J07
52. Sarcoidosis.	154	693	D00
53. Sarcoid granuloma (microscopy).	154	693	D02, D15
54. Granulation tissue.	157	105	D05
55. Angiogenesis.	157	104	J07(RS2)
56. Four important features of "healing by first intention".	158	106	J14
57. Complication of wound healing.	159	109	J04, A07, J08
58. Four factors influencing wound healing.	160	105	D12
59. List the factors promoting wound healing.	160	106	J02
60. Local factors which delay wound healing.	160	106	D08
61. Callus.	161	1193	J09
62. Complications of fracture healing of bone.	162	1194	D03
63. What is a stem cell? What are its types?	163	26	D15

**CHAPTER 6****INFECTIOUS AND PARASITIC DISEASES****Short Essays**

1. Pathology of kala-azar.	—	393	J13
2. Mycetoma foot.	173	—	D03
3. Pathology of deep fungal infections.	173	—	J09
4. Amoebiasis.	178	794	D09(RS2)
5. Cysticercosis.	181	395	D99

**Short Answers**

1. Name parasites that cause anemia.	—	—	D01
2. Name sexually transmitted diseases.	—	351	D14(RS3), D02
3. Morphology of <i>Plasmodium falciparum</i> in peripheral smear.	—	—	D03
4. Morphology of <i>Cryptococcus</i> .	—	388	J04
5. Prions.	165	1281	J07
6. Mention six prion diseases.	165	1281	J13
7. Microscopy of lymphogranuloma venereum.	170	384	J15
8. Name streptococcal lesions in human.	171	365	D01
9. Gross features of mycetoma.	173	—	D08(RS2)
10. Madura mycosis.	173	—	J05

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	HRMN	RBNS	
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|---------------------------------------------------------------|-----|-----|-----|
| 11. List the lesions caused by <i>Etmomoeba histolytica</i> . | 179 | 794 | D00 |
|---------------------------------------------------------------|-----|-----|-----|

**CHAPTER 7****NEOPLASIA****Long Essays**

- |                                                                                                                                   |               |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|
| 1. Define neoplasia. Classify neoplasia. Discuss histogenesis and biological behavior of tumors.                                  | 184, 185, 186 | 266, 268      | J11           |
| 2. Define neoplasia. Describe the characters of malignant tumors.                                                                 | 184, 186      | 266, 267      | J05           |
| 3. Define neoplasia. Outline the differences between benign and malignant tumors. Mention the mode of spread of malignant tumors. | 184, 186, 192 | 268, 274, 272 | J12           |
| 4. Define neoplasia. Write the differences between benign and malignant tumors. Describe chemical carcinogenesis.                 | 184, 186, 210 | 268, 274, 322 | J13(RS3)      |
| 5. What is neoplasia? Classify different carcinogenic agents with examples. Add a note on viral carcinogenesis.                   | 184, 210, 216 | 266, 325      | J15(RS3)      |
| 6. Define neoplasm. Discuss chemical carcinogens and their role in carcinogenesis.                                                | 184, 212, 210 | 266, 322      | D16           |
| 7. Discuss the difference between benign and malignant tumors.                                                                    | 186           | 274           | J04           |
| 8. Define metastasis. Discuss the different modes of metastasis.                                                                  | 192           | 272           | A07           |
| 9. Enumerate steps of malignant transformation of a cell. Discuss the role of p53 in neoplasia.                                   | 201, 206      | 280, 294      | D13           |
| 10. Describe carcinogenesis in detail.                                                                                            | 209           | 320           | J13           |
| 11. Classify carcinogens and describe in detail chemical carcinogenesis.                                                          | 212, 210      | 322           | D07(RS2)      |
| 12. Define carcinogenesis. Discuss role of ribonucleic acid (RNA) viruses in tumorigenesis.                                       | 209, 217      | 325           | J08           |
| 13. List major chemical carcinogens and describe chemical carcinogenesis.                                                         | 212, 210      | 322           | J06, D10      |
| 14. Define and classify oncogenic viruses. Explain the mechanism involved in tumor production by viruses.                         | 218, 216      | 325           | J10(RS2), J02 |
| 15. Give examples of oncogenic viruses and discuss oncogenesis by human papillomavirus (HPV).                                     | 218           | 325           | D04, D05      |

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	HRMN	RBNS	
<b>Short Essays</b>			
1. Differences between carcinoma and sarcoma.	184	266	D07
2. Teratoma.	185	267	D99
3. Differences between benign and malignant neoplasms.	186	274	J08(RS2), J16(RS3), J09, J14
4. Anaplasia.	189	269	J02
5. Metastasis (routes of spread of malignant tumors with examples).	192	272	D09(RS2), D11(RS2), J14(RS3), D14(RS3), D00, J01
6. Lymphatic spread of tumor.	193	273	D03
7. Hematogenous spread of cancer.	194	274	D07
8. Transcoelomic spread of malignant tumor.	194	273	D10
9. Metastatic cascade.	195	306	D15
10. Grading and staging of cancer.	197	332	D01
11. Precancerous conditions.	199	279	J09
12. Carcinoma in situ.	199	—	J03
13. Enumerate steps in molecular evolution of cancer from a normal cell.	201	280	J10
14. Oncogenes.	202	284	D09(RS2), D01
15. Explain briefly the role of tumor suppressor genes in oncogenesis.	205	290	D13(RS3)
16. Antioncogenes.	205	290	J09(RS2)
17. Retinoblastoma gene.	205	292	D09
18. p53 oncogene.	206	293	J04, J15
19. Chemical carcinogenesis.	210	321	D12(RS3)
20. Explain briefly the role of tumor suppression genes in oncogenesis.	205	290	J11(RS2)
21. Chemical carcinogens.	212	322	D15(RS3), D11
22. Biological carcinogens.	216	325	D08
23. Viral carcinogenesis.	216	325	J12(RS2)
24. Viruses and cancers.	216	325	J16
25. Oncogenic viruses.	216	325	D11(RS2)
26. Oncogenic deoxyribonucleic acid (DNA) viruses.	218	326	J12
27. HPV-induced carcinogenesis.	218	326	D09
28. Systemic effects of cancer.	224	330	D00

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	HRMN	RBNS	
29. Paraneoplastic syndrome.	225	330	D15(RS3), D16(RS3), J08, J11, J12
30. Laboratory diagnosis of cancer.	226	332	D08(RS2), D02, J03
31. Tumor markers.	229	337	J07(RS2), D10(RS2), J11(RS2), D13(RS3), J07

**Short Answers**

1. Clonal deletion theory.	—	—	D03
2. Knudson's two hit hypothesis.	201	291	D04, J06
3. List four sites where squamous cell carcinoma can occur.	—	—	J10
4. Definition and two examples of sarcoma.	184	266	D09
5. Teratoma.	185	267	J09(RS2)
6. Hamartoma.	185	267	D00, J07, D07, D11
7. What is choristoma?	185	267	D11(RS2)
8. Benign neoplasms—mention four characteristics.	186	269	J16
9. Morphology of malignant cells (transformed cell).	189	270	D04, D10
10. Features of anaplasia.	189	269	J03, J04
11. Routes of metastasis.	192	273	J00, J14
12. Lymphatic spread of tumor.	193	273	D04
13. Virchow's node.	194	—	J01, D01
14. Hematogenous spread of malignant tumors.	194	274	A07(RS2)
15. Grading of tumors.	197	332	J08
16. Four inherited cancers.	198	291	J04
17. Enumerate four examples of familial cancers.	198	291	J07
18. Precancerous lesions.	199	279	A07, J11
19. Carcinoma in situ.	199	—	D10(RS2), D16
20. Oncocytic change.	202	—	J10
21. What is cellular oncogene?	202	283	D03
22. Function of underphosphorylated retinoblastoma gene.	206	293	D03
23. p53 gene.	206	293	J13
24. List tumor suppressor genes.	205	291	A07

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	HRMN	RBNS	
25. Name any four chemical carcinogens.	213	323	J15
26. Mention hydrocarbons which are carcinogenic.	213	323	D03
27. Promoter in carcinogenesis.	213	324	D04
28. Mention four radiation-induced cancers.	214	324	J01
29. Oncogenic viruses.	216	325	D14(RS3)
30. Human papillomavirus.	218	326	D08
31. List diseases caused by Epstein-Barr virus.	219	327	D08(RS2)
32. Epstein-Barr virus (EBV) and cancers.	219	327	D11(RS2), D00, D07
33. Cachexia.	224	330	J11
34. Four examples of paraneoplastic syndrome.	225	331	A07
35. Four tumors which produce paraneoplastic syndrome.	225	331	D03
36. Paraneoplastic syndromes of oat cell carcinoma lung.	225	331	D02
37. Immunohistochemistry and its role in diagnosis of tumors—list four tumors.	227	334	D15(RS3)
38. Enumerate six tumor markers giving one example of tumor associated with each.	229	337	A07(RS2), D14(RS3), D03
39. Mention the tumor markers in the following tumors: (a) Yolk sac tumor (b) Choriocarcinoma (c) Placental site trophoblastic tumor.	229	337	J09(RS2)
40. Alpha feto protein.	229	337	J09
41. Southern blotting.	230	177	D12
42. Polymerase chain reaction (PCR).	230	175	J11

**CHAPTER 8****ENVIRONMENTAL AND NUTRITIONAL DISEASES****Short Essays**

1. Obesity.	238	444	J15(RS3)
2. Vitamin A deficiency.	242	437	D07(RS2), D16(RS3)
3. Vitamin D—discuss deficiency states in brief.	244	440	J16
4. Rickets.	244	440	D09(RS2), D14(RS3)

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	HRMN	RBNS	
5. Scurvy.	246	443	J09(RS2), J10(RS2), D13
6. Pathological findings in scurvy.	246	443	D08
<b>Short Answers</b>			
1. Effects of tobacco.	233	414	J11
2. Enumerate the cancers associated with chronic smoking.	233	415	D16(RS3)
3. Enlist four pathological features of lead poisoning.	236	411	J14
4. Marasmus.	240	433	J12(RS2)
5. Flag sign.	240	—	J14
6. Vitamin A deficiency disease.	242	437	J16
7. Rickets.	244	440	J07(RS2), D12(RS3)
8. Clinical features of rickets.	244	440	D13
9. Osteomalacia.	245	440	D14(RS3)
10. Scurvy.	246	443	J11
11. Niacin deficiency.	248	442	D10
12. Diet and cancer.	249	448	D11(RS2)

**CHAPTER 9****GENETIC AND PAEDIATRIC DISEASES****Short Essays**

1. Explain malformation, disruption and deformation with examples.	251	452	J10
2. Sex chromatin.	252	164	D10(RS2)
3. Down syndrome.	253	161	J07(RS2), D09(RS2), J12(RS2), D14(RS3), D15(RS3), D16(RS3), D05, D08, D12, J15
4. Klinefelter's syndrome.	253	165	A07(RS2), D07(RS2), J08(RS2), J14(RS3), D99, J01, J02, D04, J06, A07, J12

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	HRMN	RBNS
5. Turner's syndrome.	253	166
		J09(RS2), J10(RS2), J11(RS2), J13(RS3), D13(RS3), J15(RS3), J16(RS3), J00, D01, J05, J13, D13, J14

**Short Answers**

1. Malformation.	251	452	J11
2. Heterotopia.	251	473	J10
3. Barr body (sex chromatin).	252	164	J07(RS2), D11(RS2), D16(RS3), J01, D02, J03, J08
4. Down's syndrome.	253	161	D16
5. Klinefelter syndrome (karyotypic mosaics).	253	165	D12(RS3), D09, J11
6. Turner's syndrome.	253	166	D07
7. Point mutation.	255	138	J06
8. Name any four autosomal dominant disorders.	255	141	D00, J16
9. Name sex-linked inherited diseases.	255	142	D01
10. X-linked disorders—give two examples.	255	142	D14
11. Enzyme deficiency in Gaucher's and Niemann pick's disease.	256	151	J04
12. Gaucher cells (morphology).	257	153	D04, D05
13. Enumerate tumors seen in childhood.	259	475	J03, J05, J07
14. List four common pediatric malignant tumors.	260	475	J09
15. Name four childhood malignant tumors.	260	475	J12

**Section II: Hematology and Lymphoreticular Tissues****CHAPTER 10****INTRODUCTION TO HEMATOPOIETIC SYSTEM AND DISORDERS OF ERYTHROID SERIES****Long Essays**

1. Define anemia. Give the etiologic classification of anemias. Describe the peripheral blood smear and bone marrow picture and list the laboratory investigations in iron deficiency anemia.	268, 271, 275	629, 652	J08(RS2)
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	HRMN	RBNS
2. Define and classify anemias. Describe the etiopathogenesis, clinical features and laboratory diagnosis (blood and bone marrow picture) of megaloblastic anemia.	268, 271, 282	629, 645 D09(RS2), J00, J02, D11, J15, J16
3. Define and classify anemias. Discuss the causes and laboratory diagnosis of iron deficiency anemia.	268, 271, 274	629, 651 J11(RS2), D13(RS3), D15(RS3)
4. Define anemia. Classify anemias. Write in detail about megaloblastic anemia (peripheral smear findings and bone marrow findings).	271, 280	630, 645 J09
5. Give the etiological classification of anemias. Discuss the pathogenesis and laboratory diagnosis of sickle cell disease.	271, 294	630, 635 D16
6. Describe the etiology, clinical features and the laboratory diagnosis of iron deficiency anemia.	274	651 J13(RS3), D10
7. Define macrocytic anemia. Describe the laboratory diagnosis of pernicious anemia.	285	648 J16(RS3)
8. Define hemolytic anemia. Describe the laboratory diagnosis of sickle cell anemia.	286, 296	631, 636 J14(RS3)
9. Enumerate the causes of hemolytic anemia. Discuss the laboratory diagnosis of hemolytic anemia in general.	286, 287	631 J10(RS2), D01
10. Classify hemolytic anemias. Describe sickle cell anemia.	287, 294	631, 635 D07(RS2), D11(RS2), D99
11. Classify hemolytic anemias. Write in detail about $\beta$ -thalassemia. Discuss the laboratory diagnosis of thalassemias.	287, 298	631, 638 D12(RS3), D13
12. A 38-year-old male presents with weakness, fatigue, dyspnea, and complaints of recurrent bleeding piles. On examination: pallor (++), spoon shaped nails and smooth tongue was noted. (a) What is your provisional diagnosis? (b) What will be the laboratory findings, which will confirm your provisional diagnosis? (c) What are the differential diagnosis on peripheral blood smear examination findings?	290	652 D15

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	HRMN	RBNS
13. Mention two conditions where you get spherocytes in the peripheral smear. Discuss the etiology and diagnosis of hereditary spherocytosis.	291	632 D03
14. Classify thalassemia syndromes. Write a note on molecular pathogenesis of $\beta$ -thalassemia and describe the blood picture in $\beta$ -thalassemia major.	297, 298	638 D12
15. A 5-year-old boy presented with pallor, jaundice and failure to thrive. His Hb was 5 g%, peripheral smear showed microcytic hypochromic red blood cells (RBCs) and many target cells and reticulocyte count 8%. (a) What is your most probable diagnosis and why? (b) What is the etiopathogenesis of this condition? (c) Add a note on laboratory investigations in this case.	298	638 J15(RS3)

**Short Essays**

1. Reticulocyte.	265	—	J03
2. Indications and contraindications of bone marrow aspiration.	263	—	J14, D14
3. Classification of anemia.	271	630	D05
4. Abnormalities of shape of red blood cells.	269	—	D07
5. Laboratory diagnosis of iron deficiency anemia (peripheral blood smear and bone marrow findings).	275	652	D09, J10, J14, J15
6. Laboratory diagnosis of megaloblastic anemia (peripheral blood smear and bone marrow findings).	282	645	A07(RS2), J10(RS2), D14(RS3), D00, J03, J04, D04, D05, J06
7. Megaloblast.	283	645	J08
8. Pernicious anemia.	285	647	J13(RS3), D16(RS3)
9. Laboratory tests in hemolytic anemias.	287	—	D11, J12, D12
10. Peripheral smear blood picture of hemolytic anemia.	287	632	J11
11. How do you classify hemolytic anemias?	287	630	J01, J10

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	HRMN	RBNS	
12. Hereditary spherocytosis.	291	632	J09(RS2), D10(RS2), J12(RS2)
13. Discuss the molecular pathology and morphology of hereditary spherocytosis.	291	632	J13
14. G6PD deficiency state.	293	634	D10
15. Sickle cell disease.	294	635	J16
16. Sickle cell anemia and its complications.	294	635	D14(RS3), J05, J08
17. Pathogenesis of sickle cell disease.	294	635	J08(RS2), J06, A07
18. Sickle cell crisis.	294	637	J13
19. Laboratory diagnosis of sickle cell anemias.	296	636	J09
20. Beta-thalassemia.	298	638	D14
21. Aplastic anemia.	301	653	J07(RS2), D07, D14
22. Pancytopenia.	301	653	D08

**Short Answers**

1. List the differences between normoblast and megaloblast.	—	—	J08(RS2)
2. Abnormally low RBC count is seen. Name the condition.	—	—	D99
3. Macropolycyte.	—	—	J01, D01
4. Definition and causes of leuko-erythroblastic anemia.	—	—	D02
5. Absolute indications for bone marrow aspiration.	263	—	J09(RS2), J10(RS2), D05, J10
6. Erythropoietin.	264	—	J10
7. Reticulocyte.	265	631	J07(RS2), J12(RS2), D09, J15
8. What is reticulocyte? Mention its morphology and staining method.	265	631	D09(RS2)
9. Reticulocyte—normal and abnormal values.	265	631	D99
10. Reticulocyte count—utility.	265	631	D16
11. Significance of reticulocytosis.	265	631	J10(RS2), J13(RS3), D00, J02

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	HRMN	RBNS
12. Four conditions where reticulocyte increases.	265	631 D03
13. Hemoglobin values at different ages.	268	— J10(RS2), D99
14. RBC indices.	268	630 J11(RS2), D13(RS3), J14(RS3), J02, J13, J15
15. Mean corpuscular volume.	268	630 D09(RS2), J13(RS3), D13
16. Mean corpuscular hemoglobin concentration.	268	630 J09(RS2), J04, D10
17. Poikilocytosis.	269	— D11, D14
18. Give four examples for poikilocytes.	269	— J09
19. Basophilic stippling.	269	411 D13
20. Target cell.	270	640 J07, D11
21. Target cell. What is it? How does it look?	270	640 D99, J15
22. Spherocytes.	269	632 D11(RS2)
23. Causes of microcytic hypochromic anemia.	271	— D08, D12
24. Enumerate four causes of microcytic RBCs.	271	— J07
25. Causes of macrocytic anemia.	271	— J05, D14
26. Peripheral blood smear findings in iron deficiency anemia.	275	652 J12(RS2), J03, J04
27. Causes of megaloblastic anemia.	282	645 D12
28. Effects of vitamin B <sub>12</sub> deficiency on the nervous system.	282	647 D13
29. Oval macrocytes.	282	645 J10
30. Megaloblast.	283	645 D04, J12, J14
31. What is schilling test?	284	— J00, D13
32. Pernicious anemia.	285	647 D12
33. Enlist laboratory findings in hemolytic anemia.	287	— D07
34. Peripheral smear findings in microangiopathic hemolytic anemia.	289	644 J13(RS3)
35. Diagnosis of sickle cell anemia.	296	636 J12(RS2)
36. Enumerate tests for sickling in sickle cell anemia.	296	— D08
37. Sickling/sickle cell test (principle).	296	— D15(RS3), D00, D01, J02, J04, J07, J12, J13, J15

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	HRMN	RBNS	
38. Irreversible sickle cell.	294	636	J10
39. Crisis in sickle cell anemia.	295	637	D08(RS2)
40. List the abnormal hemoglobins.	296	—	J00
41. Classification of thalassemia.	297	638	D04
42. $\beta$ -thalassemia.	298	638	J08
43. Pancytopenia—define, causes.	302	653	J16(RS3), D12, D15
44. Peripheral blood picture in thalassemia.	300	640	D08(RS2), J12
45. Four causes of aplastic anemia.	302	653	J06, J08
46. Peripheral blood picture in aplastic anemia.	302	654	D10
47. Myelofibrosis.	303	620	J11

**CHAPTER 11****DISORDERS OF PLATELETS, BLEEDING DISORDERS AND BASIC TRANSFUSION MEDICINE****Long Essays**

- |                                                                                                                                                                        |          |        |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|----------|
| 1. Discuss laboratory diagnosis in a case of bleeding disorder.                                                                                                        | 306      | 656    | D14      |
| 2. Define purpura. Describe the classification of purpuras. Describe the bone marrow picture of sickle cell anemias.                                                   | 309, 296 | —, 635 | D99      |
| 3. Define and classify bleeding disorders. Describe the laboratory diagnosis of purpuras.                                                                              | 309, 306 | —      | D00      |
| 4. Classify bleeding disorders. Describe the pathogenesis and laboratory findings of idiopathic thrombocytopenic purpura.                                              | 309, 311 | —, 658 | D02      |
| 5. Describe and classify purpuras. Describe etiology, hematological features, clinical features and laboratory diagnosis of idiopathic thrombocytopenic purpura (ITP). | 309, 311 | —, 658 | D10(RS2) |
| 6. What is disseminated intravascular coagulation (DIC)? Enlist four important disorders associated with it. Add a note on pathogenesis and laboratory findings.       | 315      | 663    | J14      |

**Short Essays**

- |                                                                                      |     |     |          |
|--------------------------------------------------------------------------------------|-----|-----|----------|
| 1. Coagulation cascade.                                                              | 308 | 118 | J07      |
| 2. Thrombocytopenia—causes                                                           | 310 | 657 | D16      |
| 3. List the causes of thrombocytopenia. Discuss idiopathic thrombocytopenic purpura. | 310 | 657 | D12(RS3) |

Contd... —

Contd...

	HRMN	RBNS	
4. Idiopathic thrombocytopenic purpura (etiopathogenesis and laboratory findings).	311	658	D07(RS2), J05, A07, D07, D08, D11, D13, D15
5. Hemophilia (hemophilia A).	313	662	A07(RS2), D08(RS2), D09(RS2), J11(RS2), D13(RS3), D14(RS3), D16(RS3), D02, J06
6. Von Willebrand's disease (clinical feature and laboratory diagnosis).	314	662	J10(RS2), J15(RS3), J02, D05, D09, J13
7. Disseminated intravascular coagulation (etiology and pathogenesis).	315	663	J09(RS2), J16(RS3), D12, J13
8. Bombay blood group.	318	—	J14
9. Criteria for selection of blood donor.	318	—	D14
10. Screening of blood unit before transfusion (pretransfusion tests).	318	—	D07, J08
11. Discuss the hazards of blood transfusion (blood transfusion reactions).	318	665	J12(RS2), D11, J15, D16
12. Mismatched blood transfusion—how will you investigate?	318	665	J16
13. Hemolytic disease of newborn (Erythroblastosis fetalis).	319	461	D02, D04, D12, D15
14. Blood components.	319	—	J07

**Short Answers**

- |                                                    |     |     |               |
|----------------------------------------------------|-----|-----|---------------|
| 1. Enumerate functional platelet disorders.        | —   | —   | D16(RS3)      |
| 2. Describe clot retraction test                   | —   | —   | D10(RS2)      |
| 3. Mention two causes of impaired clot retraction. | —   | —   | J01           |
| 4. Enumerate the causes of thrombocytosis.         | —   | —   | J03           |
| 5. Mention four acquired coagulation disorders.    | 309 | —   | J01           |
| 6. Enumerate six/four causes for thrombocytopenia. | 310 | 657 | J15(RS3), D09 |
| 7. Etiopathogenesis of ITP.                        | 311 | 658 | D05           |
| 8. Bone marrow findings in ITP.                    | 311 | 658 | A07(RS2)      |
| 9. Hemophilia.                                     | 313 | 662 | D08           |

Contd... —

Contd...

	HRMN	RBNS
10. Bombay blood group.	318	— J03, J06, D08, J12
11. How will you select a donor for blood donation (blood donor selection criteria)?	318	— J14(RS3), D12
12. Blood transfusion reactions.	318	665 J11(RS2), D13(RS3), D05
13. Enumerate the disease transmitted by blood transfusion.	319	666 D08(RS2), D09(RS2), J10(RS2), D00, J03, J05, J09, D12
14. Fresh frozen plasma—uses.	319	— D12, D14, D15
15. Platelet concentrate.	319	— D10, J16
16. Cryoprecipitate.	319	— D16
17. Causes for hydrops fetalis.	319	461 J15

**CHAPTER 12****DISORDERS OF LEUKOCYTES AND LYMPHORETICULAR TISSUES****Long Essays**

1. Define and classify leukemias. Discuss 333, 588, J07(RS2), peripheral blood smear, bone marrow, 336 617 J09(RS2), biochemical findings and the characteristic chromosomal abnormality associated with chronic myeloid leukemia. D14(RS3), J01, D07
2. Define and classify leukemias. Describe 333, 588, J03, D09 the laboratory diagnosis of acute myeloid 341 613 leukemia (AML). Describe the bone marrow findings in AML including special stains.
3. Classify leukemia. Write the clinical 333, 588, J12(RS2) features, French-American-British 346, 591 (FAB) classification and the diagnostic 353 methods used in the diagnosis of all.
4. A 36-year-old male presents with weak- 340 611 D16(RS3) ness, pallor and bleeding gums. His Hb was 7 g%, total leukocyte count 1,10,000/cu mm with many immature WBCs, which are positive for myeloperoxidase (MPO), and platelet count 22,000/cu mm.
  - (a) What is the most probable diagnosis and why?
  - (b) How do you classify this condition?
  - (c) What are the laboratory findings in such cases?

Contd... —

Contd...

	HRMN	RBNS	
5. Classify acute leukemias. Discuss laboratory diagnosis of acute leukemia.	340, 353	588	J12
6. Classify lymphomas and write on Hodgkin's lymphoma.	345, 348	588, 606	J02
7. Discuss and describe real classification of non-Hodgkins lymphoma.	345	—	D05
8. A 35-year-old man was admitted with history of painless cervical and axillary lymphadenopathy. He had history of loss of weight, fever and night sweats and was found to have cutaneous allergy. There was no hepatosplenomegaly. (a) What is your most probable diagnosis? (b) Give the classification of the condition. (c) Describe the morphology of any two types.	348	606	A07(RS2)
9. A 45-year-old lady presented with painless neck swelling since 3 months associated with loss of weight and fever. Fine needle aspiration cytology (FNAC) of the same showed a polymorphous population of lymphocytes, eosinophils, plasma cells and large binucleate cells with nucleus having owl-eye appearance. What is your diagnosis? Classify the disease in question and write a note on its molecular pathogenesis.	348	606	J13
10. A 60-year-old man was admitted with a pathological fracture. On examination he was found to be anemic. Laboratory examination showed erythrocyte sedimentation rate (ESR): 100 mm/hr, X-ray—multiple lytic lesions. Peripheral smear showed increased Rouleaux formation of the red cells and thrombocytopenia. Bone marrow examination confirmed the diagnosis. (a) What is your probable diagnosis? (b) What the other hematological and urinary findings that would be positive in this condition? (c) Describe the bone marrow findings in this condition.	361	599	A07(RS2)
<b>Short Essays</b>			
1. Tabulate the differences between myeloblast and lymphoblast.	326	—	D12(RS3)

Contd...



Contd...

	HRMN	RBNS	
2. Infectious mononucleosis.	329	360	D00
3. Leukemoid (blood) reaction.	331	—	D09(RS2), J15(RS3), J02, J05
4. Classification of leukemia.	333	588	D08(RS2)
5. Philadelphia chromosome.	337	617	D10(RS2)
6. Chronic myeloid leukemia.	335	616	J04
7. Laboratory diagnosis of chronic myeloid leukemia.	336	617	D08(RS2), J15(RS3), D10, D13
8. Blood picture in chronic myeloid leukemia.	336	617	J14(RS3)
9. Polycythemia vera.	338	618	D07(RS2)
10. Myelodysplastic syndrome.	343	614	D02
11. FAB and World Health Organization (WHO) classification of acute myelogenous leukemia.	340	612	A07, J10
12. FAB classification of acute leukemia.	340	—	A07(RS2), D00, D04, J09
13. FAB classification of acute myeloid leukemia.	341	—	J15
14. Peripheral smear and bone marrow findings in acute myeloblastic leukemia.	341	613	J07
15. Cytochemistry of acute leukemias.	342	—	D02
16. Classification of lymphomas.	345	588	J11
17. Classification of non-Hodgkin's lymphoma.	345	—	D99, J01
18. Revised European American Lymphoma (REAL) classification of non-Hodgkin's lymphoma.	345	—	D16
19. Hodgkin's disease (Hodgkins lymphoma).	348	606	J12(RS2), D13(RS3), J16(RS3), J07
20. Classification of Hodgkin's lymphoma.	348	607	D11(RS2)
21. Reed-Stenberg (RS) cell.	348	607	J00
22. Gross and microscopy of Hodgkin's lymphoma.	349	607	J03
23. Nodular sclerosis type of Hodgkin's lymphoma.	350	609	J04, D07
24. Morphology of Hodgkin's lymphoma—mixed cellularity type.	350	609	D09(RS2)
25. Blood picture in chronic lymphocytic leukemia.	355	594	D15(RS3)

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	HRMN	RBNS	
26. B cell lymphoma.	357	595	J10(RS2)
27. Peripheral blood picture of acute lymphoblastic leukemia.	353	591	J16(RS3)
28. Non-Hodgkin's lymphoma.	352	—	J05
29. Follicular lymphoma.	356	594	J10
30. Burkitt's lymphoma (morphology).	357	597	D08(RS2), J09(RS2), D10(RS2), D15(RS3), D11
31. Multiple myeloma (laboratory findings).	361	599	D08(RS2), J11(RS2), J13(RS3), D13(RS3), J14(RS3), D02, J05, J10
32. Hypersplenism.	367	624	J12(RS2), D99, D02

**Short Answers**

1. Agranulocytosis.	60	582	J13
2. Leukopenia. What is it? Name the causes.	—	582	D99, J00, D01, J02
3. Two differences between leukocytosis and leukemia.	—	—	D00
4. Leukocytosis (definition and causes).	—	583	J08(RS2), J13(RS3), D05, D11
5. Smoldering myeloma.	—	601	J13
6. Tropical splenomegaly.	—	—	J01
7. What is reactive lymphadenitis?	322	584	A07
8. Myelocyte.	324	—	J08
9. Myeloblast.	326	613	D16
10. Neutrophilia.	327	584	J16
11. Causes for lymphocytosis.	328	—	J05
12. Hypersegmented neutrophil.	328	—	D11(RS2), J09
13. Functional defect in neutrophils.	328	—	J15(RS3)
14. Name six causes for monocytosis.	329	584	D16(RS3)
15. Normal and abnormal absolute eosinophil count values.	329	—	D99
16. Normal eosinophil count, two causes for eosinophilia.	329	—	J01, D01
17. Eosinophilia.	329	—	D13, D16

Contd... —

Contd...

	HRMN	RBNS
18. Causes of eosinophilia.	329	— J11(RS2), D13(RS3), J15(RS3), D15(RS3)
19. Conditions associated with eosinophilia.	329	— D08(RS2)
20. Role of eosinophils in parasitic infections.	329	— J10
21. Basophilia.	329	— D14
22. Infectious mononucleosis.	329	360 J05
23. Leukemoid reaction.	331	— J11(RS2), D13(RS3), D09, D15, D16
24. Special stains used to differentiate leukemoid reaction and leukemia.	332	— D99
25. Philadelphia chromosome.	337	617 J06, D12, D16
26. Peripheral smear findings in chronic myeloid leukemia.	336	617 A07(RS2), D05
27. Pathological causes of polycythemia.	338	618 D08
28. Peripheral smear findings in acute myeloid leukemia.	341	613 D04, J06, J08
29. Auer rods.	342	613 D13
30. Enlist cytochemical stains for typing of leukemias.	342	— J14
31. Classification of Hodgkin's disease (subtypes of Hodgkin's lymphoma).	348	607 J13(RS3), D04
32. Appearance of diagnostic cell of Hodgkin lymphoma (morphology of Reed-Sternberg cell).	349	607 D08(RS2), D03
33. Reed-Sternberg cell and its variants.	348	607 J07(RS2), J08(RS2), D10(RS2), J11(RS2), D08, J09, J10, J11, J11, D14
34. Name the different types of Reed-Sternberg cells. Mention the types of Hodgkin's lymphoma where they are seen.	348	607 J15(RS3)
35. Microscopy of Hodgkin lymphoma—lymphocytic predominance type.	349	609 D07(RS2)
36. Nodular sclerosis Hodgkin's lymphoma.	350	608 J16
37. Hodgkin's lymphoma—mixed cellularity (microscopy).	350	609 J06, D10
38. Ann Arbor classification of lymphomas.	352	611 D13

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	HRMN	RBNS
39. Name peripheral B cell neoplasms.	348	588 J04
40. Molecular pathogenesis of follicular lymphoma.	356	594 D13
41. Morphology of follicular center cell lymphoma.	356	595 D04
42. Burkitt lymphoma.	357	597 J15
43. Microscopy of Burkitt lymphoma.	357	597 J08(RS2)
44. Radiological appearance of skull in multiple myeloma.	362	600 J11(RS2)
45. Write the bone marrow findings in multiple myeloma.	362	599 D07(RS2)
46. Morphology of plasma cells in multiple myeloma.	362	599 J09
47. M protein.	363	600 J00
48. Urinary findings in multiple myeloma.	363	600 J12
49. Bence Jones proteins and its demonstration/importance.	363	600 J08(RS2), J09(RS2), D14(RS3), J09, D09, J13, D15
50. Bence Jones proteinuria.	363	600 D16
51. Causes of hypersplenomegaly.	367	624 J05, J07
52. Causes of splenomegaly/splenic enlargement.	367	624 D13(RS3), D14(RS3), J16(RS3), J12, J13, D13
53. Causes for massive splenomegaly.	367	624 J15(RS3), A07, D09
54. Thymoma.	369	626 J13

## Section III: Systemic Pathology

## CHAPTER 13

## THE BLOOD VESSELS AND LYMPHATICS

## Long Essays

1. Define atherosclerosis. Discuss the risk factors, etiopathogenesis and pathology of atherosclerosis. Also briefly write about the sites and clinical significance of atherosclerosis. Describe the morphology (along with neat and labeled diagram) of an atherosclerotic plaque. Mention the complications of atherosclerosis.

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	HRMN	RBNS	
2. Enumerate the risk factors of atherosclerosis and discuss the role of lipid and endothelial injury in its pathogenesis.	373, 376	492, 494	D03

**Short Essays**

1. Atherosclerosis.	373	491	J12
2. Etiopathogenesis of atherosclerosis (risk factors in atherosclerosis).	373	492	D07(RS2), D10(RS2), J11(RS2), D10
3. Atheroma—pathogenesis.	375	494	D16
4. Role of macrophages in atherosclerosis.	377	496	D04
5. Gross and microscopic appearance of atherosclerosis (atheromatous plaque).	378	496	D08(RS2)
6. Aortic lesions in atherosclerosis.	377	496	D07
7. Morphology and complications of atheroma.	378	496	D12
8. Syphilitic aortitis.	381	—	J01
9. Aneurysms.	386	501	J07(RS2), J10(RS2)
10. Atherosclerotic aneurysm—morphology and complications.	386	502	D09(RS2)
11. Dissecting aneurysm.	387	504	D07(RS2), D08, J16
12. Tumors of blood vessels.	391	515	D11(RS2)
13. Kaposi sarcoma.	395	518	J13

**Short Answers**

1. Monckeberg's medial sclerosis.	372	491	J07(RS2), J09(RS2), D01, J05, D08, D10, D11
2. List major risk factors for atherosclerosis.	373	492	J08, J13
3. Atherosclerosis—gross lesions.	378	496	J16
4. Atheroma.	378	496	J11
5. Microscopic appearance of uncomplicated aortic atheromatous plaque.	378	496	D09
6. Complicated lesions of atherosclerosis.	378	499	D04
7. Microscopy of Wegener granulomatosis.	384	511	J13
8. Raynaud's phenomenon.	385	513	J02
9. Definition and causes of aneurysm.	386	501	D02
10. Morphology of syphilitic aneurysm.	387	—	J04
11. Migratory thrombophlebitis.	390	514	J02
12. Hemangioma.	391	516	J12(RS2)

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HRMN RBNS

**CHAPTER 14****THE HEART****Long Essays**

1. A 45-year-old man was rushed to the hospital following the sudden onset of an episode of crushing substernal chest pain. He receives advanced life support measures. His course was marked by intractable cardiogenic shock and he died 4 days later. At autopsy, a large transmural anterolateral area of coagulative necrosis was found in the anterolateral wall of the left ventricle.
  - (a) What is your diagnosis?
  - (b) What microscopic findings are most likely to be present in this case?
  - (c) What are the risk factors leading to this condition?
  - (d) What are the complications of this disease?
2. Classify myocardial infarction. Discuss etiopathogenesis of myocardial infarction. Add a note on enzyme changes in myocardial infarction.
3. Write about the etiopathogenesis and pathology of myocardial infarction with the diagnostic tests.
4. Describe the morphology/sequential changes seen in myocardial infarction in time. Mention the complications.
5. A 50-year-old man is admitted with sudden onset of central chest pain of 6 hours duration. What is your probable diagnosis? Mention appropriate investigations. What morphological changes in the target organ(s) are expected?
6. A 12-year-old boy presented with fever, migrating joint pain and palpitation. Child had an upper respiratory infection 3 weeks back. On examination a subcutaneous nodule was observed on the extensor aspect of right elbow. On auscultation heart sounds were weak with tachycardia.
  - (a) What is your diagnosis?
  - (b) Describe the morphological features expected in the organ involved.
  - (c) Add a note on its etiopathogenesis.

Contd...

Contd...

	HRMN	RBNS	
7. A child aged 10 years presented with history of fever, sore throat, migratory polyarthritis and subcutaneous nodules (a) What is your probable diagnosis. (b) Discuss the etiopathogenesis and pathology of the target organ.	418	557	D10(RS2), J16(RS3)
8. A 8-year-old boy was brought to clinic by his mother with complaints of shifting joint pain and swelling involving knee joint, elbow joint, etc. and fever since three days. On inquiry it was found that the child had an attack of sore throat. Based on this information: (a) What is your probable diagnosis? (b) Enlist the organs, which may get affected. (c) What is the pathogenesis of this disease? (d) Enlist the causes of death in this condition.	418	557	J15
9. Define rheumatic fever. Describe etiopathogenesis, pathology and complications of rheumatic heart disease.	418	557	J07(RS2), D99, D02, J05, D05, J10, D10
10. Describe the etiology, pathogenesis, morphology and complications of infective endocarditis.	425	559	J03, J06
<b>Short Essays</b>			
1. Atrial septal defect.	403	534	D12(RS3)
2. Fallot's tetralogy (features and complications).	405	535	J08(RS2), D03, J11, D15
3. Pathogenesis of myocardial infarction.	407	540	D14(RS3)
4. Gross assessment of age of myocardial infarction.	411	544	J08
5. Microscopic assessment of myocardial infarction.	411	544	J10
6. Laboratory diagnosis and consequences of myocardial infarction.	414	547	D13(RS3), D15(RS3), D15
7. Discuss the consequences and complications of myocardial infarction.	415	547	J13, D13
8. Etiopathogenesis of rheumatic heart disease.	418	558	D09(RS2)
9. Rheumatic carditis.	418	558	J14(RS3)
10. Etiopathogenesis of rheumatic carditis.	418	558	A07(RS2)

Contd... —



Contd...

	HRMN	RBNS	
11. Morphology (pathology) of heart in acute rheumatic heart disease.	420	558	D08, D13, J16, D16
12. Aschoff body (Aschoff nodule).	420	558	D01, D07
13. Morphology of heart in chronic rheumatic heart disease.	420	558	J04
14. Extracardiac manifestations of rheumatic fever.	423	559	J10(RS2)
15. What are the modified Jones's criteria?	423	—	D00
16. Sequel of rheumatic heart disease.	424	559	D15(RS3)
17. Libman Sach's endocarditis.	424	562	J00
18. Bacterial endocarditis.	425	559	J12
19. Infective endocarditis.	425	559	D12(RS3)
20. Subacute bacterial endocarditis.	425	559	J13(RS3)
21. Etiopathogenesis of infective endocarditis.	425	559	D08(RS2)
22. Heart in endocarditis.	426	560	D04
23. Describe various types of cardiac vegetations in endocarditis.	426	560	D11(RS2), D16(RS3)
24. Pathology of cardiac vegetations.	426	560	D09
25. Extracardiac lesions of subacute bacterial endocarditis.	428	560	J01
26. Pericarditis.	437	573	D05

**Short Answers**

1. Intramural cardiac thrombi.	—	—	J10
2. Ventricular septal defect.	403	535	D14(RS3)
3. Patent ductus arteriosus.	404	535	J09(RS2)
4. Fallot's tetralogy—components and complications.	405	535	D07(RS2), D16(RS3), D05, D16
5. Laboratory diagnosis of myocardial infarction.	414	547	D09(RS2), D11
6. Enzyme markers for myocardial infarction.	414	547	D07, D10
7. Biochemical markers of cardiac injury.	414	547	J16
8. Sequel of myocardial infarction.	415	547	J04, A07
9. Cor pulmonale—definition and three causes.	418	553	J02
10. Aschoff body (microscopy).	420	558	J09(RS2), J11(RS2), J12(RS2), J03, D04, J06, D12
11. List lesions of rheumatic valvulitis.	420	558	D07

Contd... —

Contd...

	HRMN	RBNS	
12. MacCallum plaque.	422	558	D14
13. Name extracardiac lesions of rheumatic heart disease.	423	559	J11
14. Jones major criteria.	423	—	A07
15. Enlist two major and two minor Jones criteria.	423	—	J14
16. Complications of rheumatic heart disease.	424	559	D13(RS3)
17. Libmann's Sack's endocarditis.	424	562	D15(RS3), A07, J08
18. Morphology of vegetations in infective endocarditis.	427	560	D03
19. Cardiomyopathy—definition and types.	434	564	J02
20. Pericarditis.	437	573	D16

**CHAPTER 15****THE RESPIRATORY SYSTEM****Long Essays**

- |                                                                                                                                                                                                                                                                                                         |          |          |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------------|
| 1. Classify pneumonia. Discuss in detail the etiopathogenesis, pathology and complications of lobar pneumonia.                                                                                                                                                                                          | 448      | 703      | D09           |
| 2. What are chronic obstructive pulmonary diseases? Write the pathology, pathogenesis and morphology of emphysema lung.                                                                                                                                                                                 | 458, 460 | 674, 676 | D07           |
| 3. Define obstructive disease of the lung. Enumerate the chronic obstructive pulmonary disease. Classify bronchial asthma. Discuss the pathogenesis of atopic bronchial asthma. Add a note on the sputum findings in bronchial asthma.                                                                  | 458, 463 | 674, 679 | D15           |
| 4. What is emphysema? Write the types of emphysema? Describe the pathogenesis of emphysema.                                                                                                                                                                                                             | 459      | 675      | D12(RS3), J16 |
| 5. Define bronchiectasis. Discuss the etiopathogenesis, gross and microscopic pathology and complications of bronchiectasis.                                                                                                                                                                            | 465      | 683      | D00           |
| 6. A 40-year-old female presented with history of chronic cough with profuse expectoration, occasional hemoptysis and also clubbing with coarse crepitation in right lung base:<br>(a) What is your probable diagnosis?<br>(b) Discuss the etiopathogenesis and pathology of the target organ involved. | 465      | 683      | J10(RS2)      |

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	HRMN	RBNS	
7. Define and classify pneumoconiosis. Discuss the pathology and complications of asbestosis.	467, 469, 472	687	D01
8. Classify lung tumors. Discuss the pathogenesis, morphology and clinical features including paraneoplastic syndromes of squamous cell carcinoma lung.	477, 478	714, 712	D13(RS3)
9. Classify lung tumors and describe pathology of bronchioloalveolar carcinoma.	477, 480	714, 715	D11
10. Discuss etiopathology and morphology of bronchogenic carcinoma.	478, 479	712, 715	J08
11. Discuss the etiopathogenesis of carcinoma lung and write the morphology of small cell carcinoma.	478, 480	712, 717	D03
<b>Short Essays</b>			
1. Hyaline membrane disease.	444	457	J07
2. Adult respiratory distress syndrome (ARDS)—pathogenesis.	444	672	D14(RS3), J05, J11, J15
3. Vascular changes in pulmonary hypertension.	447	699	J09
4. Lobar pneumonia—etiology, stages and gross morphology.	449	703	D07(RS2), J12
5. Enumerate the stages in the evolution of lobar pneumonia. List the complications.	449	704	J01
6. Morphology of different stages of pneumonia.	449	704	J11(RS2), J16(RS3)
7. Bronchopneumonia.	452	704	D02
8. Viral pneumonias.	453	705	D05
9. Pulmonary tuberculosis.	457	371	J15(RS3)
10. Emphysema—definition, types and etiopathogenesis.	459	675	A07(RS2), D08(RS2), D11(RS2), J03, J06, J07, J10, D12
11. Panacinar emphysema (etiology).	462	675	D04
12. Bronchial asthma—etiopathogenesis and genetics.	463	680	D16(RS3), D13
13. Bronchiectasis—etiology, pathogenesis, pathology (morphology) and complications.	465	683	J08(RS2), J09(RS2), J15(RS3), J00, J02, J05, J08, D08, J14, D14

Contd...

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	HRMN	RBNS	
14. Silicosis.	470	690	J04
15. Asbestos related diseases (asbestosis)/ asbestos-induced lung diseases.	472	690	D10(RS2), D15(RS3), D11
16. Etiological and clinicopathological features of bronchogenic carcinoma.	478	712	D10
17. Etiopathogenesis of carcinoma lung.	478	712	D09(RS2)
18. Small cell tumors of lung.	480	717	D16
19. Morphology of small cell carcinoma of lung.	480	717	D08(RS2)
20. Oat cell carcinoma of lung.	481	—	J01, D01
21. Spread of bronchiogenic carcinoma.	482	718	J00
22. Clinical presentation and morphology of small cell carcinoma of lung.	482, 480	717	D08
23. Bronchial carcinoid.	483	719	D05

**Short Answers**

1. Write four important features of hyaline membrane disease.	444	457	D10
2. Lobar pneumonia.	449	703	J13(RS3)
3. Stages and gross appearance of lobar pneumonia.	449	704	J06, D12
4. Mention the stages and complications of lobar pneumonia.	449	704	D03
5. Red hepatization.	449	704	D08
6. Grey hepatization.	450	704	D10(RS2)
7. Complications/sequel of lobar pneumonia.	452	705	J08, J14, D14
8. Microscopic appearance of lung in bronchopneumonia.	452	705	D11(RS2)
9. Differences between lobar and bronchopneumonia.	454	704	J02
10. <i>Pneumocystis carinii</i> pneumonia.	455	711	A07
11. Three etiologies of lung abscess.	457	708	D14(RS3)
12. Enumerate complications of lung abscess.	457	709	D10
13. Enumerate the conditions that causes chronic obstructive pulmonary disease (COPD).	458	674	D02, J09
14. List the differences between emphysema and chronic bronchitis.	459	677	D14(RS3)
15. Reid index.	459	679	D12
16. Define and classify emphysema (types of emphysema).	459	675	J12(RS2), D13(RS3), J16(RS3), D01, D14

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	HRMN	RBNS	
17. Morphology of bronchiectasis (gross appearance).	465	683	D09(RS2), D02, D04, D10
18. Complications of bronchiectasis.	466	684	J13(RS3), D00
19. Pneumoconiosis.	467	687	J12(RS2)
20. What is pneumoconiosis? Enlist pneumoconiosis.	469	688	J10, J11, D15
21. Name different lesions associated with asbestosis.	472	688	J08(RS2), D16(RS3), J04, J14, D16
22. Caplan syndrome.	472	688	J07
23. Asbestos body.	473	691	J09, J11, D12
24. Mention three tumors caused by asbestos.	473	691	J09(RS2)
25. Bagassosis.	474	—	J08
26. Etiology of bronchogenic carcinoma.	478	712	D04
27. Non-small cell tumors of lung.	478	714	J16
28. Histopathological variants of carcinoma of lung.	480	714	J10
29. Microscopy of bronchioloalveolar carcinoma.	480	715	D14
30. Spread of bronchiogenic carcinoma.	482	718	J03
31. List paraneoplastic syndromes associated with lung cancer.	483	331	J06, D09
32. Name neuroendocrine tumors of lung.	483	719	J02
33. Hormones elaborated by carcinoma lung.	483	719	D12
34. Name four metastatic tumors in lung.	484	721	J05
35. Etiology of malignant mesothelioma.	486	723	D09
36. Microscopy of malignant mesothelioma.	486	723	J14

**CHAPTER 16****THE EYE, ENT AND NECK****Short Essay**

1. Rhinosporidiosis.	497	—	D10(RS2), J16(RS3)
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**Short Answers**

1. Retinoblastoma.	493	1339	J11(RS2), J16(RS3)
2. Etiology and sites of rhinosporidiosis.	497	—	J01

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HRMN RBNS

**CHAPTER 17****THE ORAL CAVITY AND SALIVARY GLANDS****Short Essays**

- |                                                                          |     |     |                                        |
|--------------------------------------------------------------------------|-----|-----|----------------------------------------|
| 1. Leukoplakia of oral cavity—etiology, gross and microscopy.            | 507 | 731 | D09(RS2), D02, D05, J15                |
| 2. Etiology of squamous cell carcinoma of structures in the oral cavity. | 508 | 731 | D04                                    |
| 3. Pleomorphic (salivary) adenoma.                                       | 516 | 744 | D11(RS2), J01, D01, D03, J12, D14, J15 |
| 4. Warthin's tumor (disease).                                            | 517 | 745 | A07(RS2), J09(RS2), J07                |
| 5. Adenoid cystic tumor of salivary gland.                               | 519 | 746 | D14(RS3)                               |

**Short Answers**

- |                                                                   |     |     |                                             |
|-------------------------------------------------------------------|-----|-----|---------------------------------------------|
| 1. Preneoplastic lesions in oral cavity.                          | 507 | 731 | D14                                         |
| 2. Leukoplakia (definition and morphology).                       | 507 | 731 | D10(RS2), J11(RS2), D12(RS3), D04, D11, D16 |
| 3. Name any four important causes that predispose to oral cancer. | 508 | 731 | D09                                         |
| 4. Name salivary gland tumors.                                    | 516 | 744 | J02                                         |
| 5. Pleomorphic adenoma.                                           | 516 | 744 | J12(RS2), J13(RS3), D13                     |
| 6. Pleomorphic adenoma (mixed tumor of parotid)—microscopy.       | 516 | 744 | D08(RS2), D02, J03, J06, D07, D10, J16      |
| 7. Warthin's tumor—microscopy.                                    | 517 | 745 | J07(RS2), D07(RS2), J11(RS2), D12(RS3)      |

**CHAPTER 18****THE GASTROINTESTINAL TRACT****Long Essays**

- |                                                                                                                        |          |     |     |
|------------------------------------------------------------------------------------------------------------------------|----------|-----|-----|
| 1. What is the pathogenesis of <i>Helicobacter pylori</i> gastritis? Add a note on morphology and complications of it. | 530      | 763 | J14 |
| 2. Define peptic ulcer. Discuss the pathogenesis and morphology of peptic ulcer.                                       | 533, 535 | 766 | D08 |

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Contd...

	HRMN	RBNS	
3. Define peptic ulcer. Discuss etiopathogenesis and pathology of chronic peptic ulcer.	533, 534	766	J11
4. Define peptic ulcer. Mention the sites. Describe the pathogenesis and pathology of chronic gastric ulcer.	533, 534	766	J01
5. Describe the etiology, gross and microscopy of gastric ulcer. List the complications of gastric ulcer.	533	766	A07(RS2)
6. A man developed gradual loss of weight, abdominal pain, anorexia, vomiting. A mass was detected in epigastric region. Stools were positive for occult blood. There is a firm lymph nodal mass in the left supraclavicular region and another nodule in the periumbilical region: (a) What is your probable diagnosis? (b) What is the etiopathogenesis and pathology of the organ involved?	538	771	J11(RS2)
7. Discuss the etiopathogenesis, classification and morphology of gastric carcinoma.	538	771	D14
8. Classify gastric carcinoma. Describe the gross and microscopic features of same. Discuss the spread of gastric carcinoma.	539, 541	771	D10
9. What are Inflammatory bowel diseases? Discuss in detail the etiopathogenesis, pathology and complications of Crohn's disease.	548, 549, 550	796, 798	D09
10. Enumerate inflammatory diseases of small intestine. Describe pathology of Crohn's disease.	548, 549	796, 798	J07
11. Discuss the etiopathogenesis of inflammatory bowel disease. Describe the gross and microscopy of Crohn's disease. What are its complications?	548, 549, 550	797, 798	D00
12. Mention inflammatory diseases of large intestine. Describe etiopathogenesis and pathology of ulcerative colitis.	548, 550	796, 800	J07(RS2)
13. Discuss the etiopathogenesis of inflammatory bowel disease. State the distinctive morphological features of ulcerative colitis.	548, 550	797, 800	D12

Contd...



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	HRMN	RBNS	
14. Write the inflammatory diseases of large intestine. Describe ulcerative colitis in detail. Mention the differences between ulcerative colitis and Crohn's disease.	548, 550, 552	796, 800, 797	D14(RS3)
15. Enumerate the different ulcerative Lesions of intestine. Describe the etiopathogenesis of inflammatory bowel disease. Tabulate the differences between Crohn's disease and ulcerative colitis.	548, 552	796, 797	D16(RS3), D16
16. Describe inflammatory diseases of small intestine. Describe pathology of tuberculosis of intestine.	548, 553	796	J05
17. Describe the differences between ulcerative colitis and Crohn's disease.	552	797	D04
18. Classify tumors of large intestine. Discuss etiopathogenesis, pathology and staging of carcinoma of the colon. List the precancerous conditions of carcinoma colon.	566, 570	811	D07(RS2), D02
19. A 72-year-old male presented with changes in the bowel habit, tarry stool, and loss of weight, fatigue and weakness of 6 months duration. After an endoscopic biopsy of colon, left-sided hemicolectomy was done. What is the probable diagnosis? Describe the etiopathogenesis and morphology of the target organ involved.	570	811	J06
20. Discuss in detail the pathogenesis of colorectal carcinoma, emphasizing the morphologic and molecular changes. Write briefly about the morphology of the same.	570	811	J13

**Short Essays**

1. Precancerous lesions of gastrointestinal system	—	—	J10(RS2)
2. Reflux esophagitis.	523	755	D15
3. Barrett's esophagus.	523	757	D12(RS3), D05
4. Adenocarcinoma of esophagus.	524	758	J15
5. <i>Helicobacter pylori</i> .	531	763	D05
6. Role of <i>H. pylori</i> in gastric ulcer.	531	763	D03
7. Acid peptic disease.	533	766	D15(RS3)
8. Etiology of duodenal ulcer.	533	766	J04

Contd... —

Contd...

	HRMN	RBNS
9. Etiopathogenesis of peptic ulcer.	533	766 D13(RS3), J16(RS3), J06
10. Gross and microscopy of peptic (gastric) ulcer.	535	767 D09(RS2), J08
11. Write briefly about the complications of peptic ulcer.	536	767 D00
12. Gastric carcinoma.	538	771 J15(RS3)
13. Factors associated with gastric cancer.	538	771 J09
14. Morphology of gastric carcinoma.	538	772 J08(RS2)
15. Morphological types of carcinoma of stomach.	539	772 D99
16. Early gastric carcinoma.	539	772 J09(RS2), D15
17. Meckel's diverticulum.	544	751 J10(RS2)
18. Crohn's disease.	548	798 J07(RS2), D10(RS2)
19. Differences between ulcerative colitis and Crohn disease.	552	797 D08(RS2), J09
20. Morphological features of Crohn disease.	549	799 J08(RS2), J10, D15
21. Ulcerative colitis (morphology).	550	800 J11(RS2), D07, D11, J15
22. Intestinal tuberculosis.	553	— J14(RS3)
23. Morphology of tuberculous ulcer.	553	— J12
24. Pathology of ileum in typhoid fever.	554	789 J08
25. Amebic ulcer intestine—gross, microscopy and complications.	555	794 J03
26. Malabsorption syndrome.	556	781 J02, J12
27. Celiac sprue.	557	782 D14
28. Carcinoid tumor.	559	773 D07(RS2), D11(RS2)
29. Acute appendicitis.	561	816 A07
30. Hirschsprung disease.	563	751 D12(RS3), J05
31. Diverticulosis.	564	802 J12
32. Classification of polyps of gastrointestinal tract.	566	— D09
33. Classify colorectal polyps. Describe Peutz Jeghar's polyp.	566	806 J00
34. Neoplastic polyps—intestine.	568	807 D10(RS2)
35. Juvenile polyposis colon.	570	809 J09
36. Etiopathogenesis of colonic carcinoma.	570	811 J14(RS3)
37. Adenoma-carcinoma sequence.	570	811 J09

Contd... —

Contd...

	HRMN	RBNS	
38. Differences between the carcinoma of colon on right and left side.	—	—	D99
<b>Short Answers</b>			
1. Preneoplastic lesions of large intestine.	—	—	D03, J04
2. Mallory Weiss syndrome.	523	754	J00
3. Barrett's esophagus/Barrett's esophagitis.	523	757	D10(RS2), J12(RS2), J15(RS3), J16(RS3), D11, J12, D12, J14, D16
4. Write three important features of Barrett's esophagus.	523	757	D10
5. Etiology of esophageal cancer.	524	758	J08
6. Achlorhydria.	528	764	J14(RS3)
7. <i>Helicobacter pylori</i> —lesions associated.	531	763	J13(RS3), D16(RS3), D16
8. Acute gastric ulcer.	533	767	J02
9. Pathogenetic mechanism involved in peptic ulceration by <i>Helicobacter pylori</i> .	535	763	D10
10. Macroscopy of benign and malignant gastric ulcer.	535	767	D02, J03
11. Morphology of peptic ulcer.	535	767	D04
12. Gross appearance of peptic ulcer.	535	767	J11(RS2)
13. Microscopy of chronic gastric ulcer.	535	767	J00, D01
14. Microscopic appearance of benign gastric ulcer.	535	767	D11(RS2)
15. List complications of peptic ulcer.	536	767	D08(RS2)
16. Risk factors for carcinoma stomach.	538	771	J14(RS3)
17. Morphology of gastric carcinoma.	538	772	J04
18. Linitis plastica.	541	772	J07(RS2), J00, D01
19. Signet ring cell.	541	772	J03
20. Modes of spread of gastric cancer.	541	773	J01
21. Differences between benign and malignant gastric ulcer.	543	—	J10
22. Meckel's diverticulum.	544	751	J16(RS3), D05, J09, J11
23. Intussusception.	546	778	J00, J03
24. Name two gross and two microscopic features of Crohn's disease.	549	799	D10

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	HRMN	RBNS	
25. Gross and microscopy of ulcerative colitis.	550	800	D09(RS2), J04, D05
26. Morphology of intestine in typhoid fever.	554	789	A07
27. Typhoid ulcer.	554	789	J07(RS2), D09, J11, D14
28. Amebic ulcer.	555	795	A07, D11
29. Gross appearance of amebic colitis.	555	795	D04
30. Pseudomembranous enterocolitis.	556	791	J01, D12
31. Tropical sprue.	558	783	J00
32. Enlist the symptoms of carcinoid syndrome.	560	774	J01, J03
33. Acute appendicitis.	561	816	D00
34. Microscopic appearance of acute appendicitis.	562	816	D03
35. Pseudomyxoma peritonei.	562	816	J15
36. Enumerate the conditions which can produce pseudomyxoma peritonei.	562	816	D09
37. Classify colorectal polyps.	566	—	J02
38. Peutz-Jegher syndrome—components.	566	806	J08(RS2), D11(RS2), J03, D14, D16
39. Microscopy of Peutz-Jegher's polyp.	566	807	J14
40. What is a pseudopolyp?	567	800	J14
41. Villous adenoma.	568	808	J07(RS2), D05
42. Familial polyposis syndrome.	569	816	A07
43. Etiology of colorectal carcinoma.	570	811	J10, J15
44. Adenoma-carcinoma sequence in carcinoma colon.	570	811	D13(RS3)
45. Gross morphology of carcinoma colon.	571	813	A07(RS2)
46. Staging of carcinoma of colon.	573	814	J01, D01, D07, J16
47. Astler-Coller staging of colonic cancer.	573	814	D03

**CHAPTER 19****THE LIVER, BILIARY TRACT AND EXOCRINE PANCREAS****Long Essays**

- |                                                                                                                             |             |             |          |
|-----------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------|
| 1. Classify viral hepatitis. Describe the structure, course of disease and serological markers for hepatitis B virus.       | 590,<br>591 | 830,<br>832 | D12(RS3) |
| 2. Briefly describe the etiologic agents of chronic viral hepatitis. Discuss in detail the morphology of chronic hepatitis. | 590,<br>596 | 830,<br>837 | D13      |

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	HRMN	RBNS	
3. Define and classify cirrhosis. Describe the pathology and complications of cirrhosis.	603	827	D15
4. Define and classify cirrhosis. Discuss causes of micronodular cirrhosis.	603	827	J16
5. Define and classify cirrhosis. Describe the morphological features (pathology) and complications of alcoholic cirrhosis.	603,606, 614	827, 843	D08(RS2), D09(RS2), J00
6. Describe the etiopathogenesis and pathology of alcoholic liver disease.	605	842	J09(RS2)
7. A Male aged 52 years developed gradual weakness, anorexia, weight loss. He has ascites, splenomegaly, jaundice, spider angiomas on skin and gynecomastia. Over a time he developed behavioral abnormalities, stupor and slipped into coma. There is history of chronic alcoholism: (a) What is the probable diagnosis? (b) Discuss etiopathogenesis, pathology and complications.	605	843	D11(RS2)
8. Write autopsy findings in a patient dying of cirrhosis.	608	827	D15(RS3)
9. Discuss the etiopathogenesis of cholelithiasis. Describe morphology of different kinds of gallstones. List the complications.	623, 625	875	J09
10. A 45-year-old man, presented with history of recurrent attacks of abdominal pain radiating to the upper back, following a bout of alcohol abuse. On examination mild fever, epigastric tenderness++, rapid thready pulse and sweating: (a) What is the most probable clinical diagnosis? (b) Discuss the pathogenesis. (c) Describe the morphology of target organ. (d) Mention the important laboratory investigation.	631	888	J09

**Short Essays**

1. Liver function test—indication and limitation	578	—	D16
2. Laboratory investigations in jaundice.	578	853	J15(RS3)
3. Classification of jaundice.	583	853	D12
4. Neonatal hepatitis.	586	856	J05

Contd... —

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	HRMN	RBNS	
5. Biliary atresia.	586	857	D09
6. Viral hepatitis.	590	830	J12(RS2)
7. Serological markers of hepatitis B viral hepatitis and their clinical significance.	592	832	D07(RS2), J04, J06, J16
8. Outcomes of hepatitis B virus infection.	594	835	D10
9. Morphology of liver in hepatitis A.	595	837	D04
10. Chronic hepatitis.	596	836	J12
11. Chronic active hepatitis.	596	836	J08
12. Massive liver cell necrosis.	598	836	D10
13. Liver abscesses.	600	839	J10(RS2), J02, D02
14. Amebic liver abscess—gross and microscopy.	600	—	D09(RS2)
15. Hydatid cyst (hydatid disease).	601	396	D07(RS2), J11, D13
16. Cirrhosis.	603	827	J15(RS3)
17. Classification of liver cirrhosis.	604	—	D07
18. Alcoholic liver disease (etiopathogenesis and pathology).	604	842	D10(RS2), D13(RS3), J16(RS3), D99, J07
19. Pathogenesis of alcoholic liver disease.	605	843	D14(RS3), J03
20. Morphology of alcoholic hepatitis.	607	843	J04, D08, J15
21. Secondary biliary cirrhosis.	610	—	J10
22. Hemochromatosis.	611	847	J10(RS2), J13(RS3), A07, D12
23. Wilson's disease.	612	849	J10(RS2), J00, D00
24. Portal hypertension.	615	828	J09
25. Pathogenesis of ascites due to alcoholic cirrhosis.	616	829	J14
26. Hepatocellular carcinoma (etiopathogenesis).	618	870	A07(RS2), J08(RS2), J13(RS3), J14(RS3), D04, J06, J14
27. Morphological changes of liver in hepatocellular carcinoma.	619	872	J11(RS2), J16
28. Fibrolamellar carcinoma liver.	620	873	D16
29. Hepatoblastoma.	621	869	D99, D07, J16

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	HRMN	RBNS	
30. Gallstones (cholelithiasis)—pathogenesis.	623	875	J07(RS2), D12(RS3), J13(RS3), D13(RS3), D01, D15
31. Cholecystitis.	626	877	D99
32. Cystic fibrosis.	631	466	D12
33. Acute pancreatitis—etiopathogenesis.	631	884	J14(RS3), J01, J14
34. Acute hemorrhagic pancreatitis.	631	887	A07
35. Morphological changes of pancreas in acute pancreatitis.	632	887	D11(RS2), D03

**Short Answers**

1. Tabulate the differences between prehepatic and posthepatic jaundice.	—	—	D07(RS2)
2. Importance of urine examination in jaundice patients.	—	—	D16(RS3)
3. Urinary findings in obstructive jaundice.	—	—	J14(RS3)
4. Parasitic infestations of liver.	600	839	J00
5. Van den Bergh reaction.	578	—	J13
6. Bilirubin metabolism.	582	852	D05
7. Dubin-Johnson syndrome.	586	854	J13
8. Name the different causative viruses of hepatitis.	590	831	J15
9. Laboratory diagnosis of acute viral hepatitis.	592	831	A07(RS2)
10. List serological markers for hepatitis B viral hepatitis.	592	832	J08(RS2)
11. Mention the antibodies of hepatitis B infection.	592	832	D03
12. Serological markers for hepatitis D viral hepatitis.	592	835	J09
13. Squeal of hepatitis B infection.	594	835	D15(RS3), J04
14. Microscopy of acute viral hepatitis.	595	837	D09
15. Chronic active hepatitis (CAH).	596	837	J09
16. Councilman body.	595	823	D10(RS2), J01
17. Hyperbilirubinemia.	597	853	D15(RS3)
18. Amebic liver abscess—morphology.	600	—	J16(RS3), D16(RS3)

Contd... —



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	HRMN	RBNS	
19. Hydatid cyst (morphology).	601	839	J07(RS2), D09(RS2)
20. Classification of cirrhosis.	604	—	D09
21. Mallory bodies.	607	843	D01, J11, D11
22. Microscopic appearance and conditions associated with Mallory body.	607	843	J08(RS2)
23. Causes of secondary biliary cirrhosis.	610	—	J08
24. Metabolic cirrhosis.	614	845	J08
25. Kayser-Fleisher rings.	613	850	D14
26. Enlist four abnormalities associated with non-alcoholic fatty liver disease (NAFLD).	614	845	J14
27. Complications of portal cirrhosis.	614	—	J10(RS2), J12(RS2), J12
28. Clinical features of portal hypertension.	615	829	J14(RS3)
29. Complications of portal hypertension.	615	829	D12(RS3)
30. Four malignant tumors of the liver.	617	869	J13
31. Etiology of carcinoma liver (hepatocellular carcinoma/hepatoma).	618	870	D07(RS2), J03, D07, J08
32. Fibrolamellar hepatocellular carcinoma (microscopy).	620	873	D05, J15
33. Name four metastatic tumors in liver.	622	875	J07
34. Four risk factors for gallstones.	623	876	D05, J08
35. Cholelithiasis (gallstones).	623	875	J16(RS3), J12
36. Enlist four etiological factors for pigment gallstones.	624	876	J15
37. Cholelithiasis—types and complications (effects).	625	876	D07(RS2), J01, J00, J02, D02, D04, J07, D09, D11
38. Types of gallstones.	625	876	D13, D14
39. Microscopy of acute and chronic cholecystitis.	626	878	D14(RS3)
40. Acute pancreatitis.	631	884	D00
41. Causes of pancreatitis.	631	884	D13(RS3)
42. Causes of acute pancreatitis.	631	884	J15(RS3), D10
43. Acute pancreatitis—gross and microscopy.	632	887	J16
44. Complications of acute pancreatitis.	632	887	J02

Contd...

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HRMN RBNS

## CHAPTER 20

## THE KIDNEY AND LOWER URINARY TRACT

## Long Essays

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |          |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
| 1. A 10-year-old male presented with sudden onset hematuria and oliguria. On examination, he was found to have moderate hypertension. Urine examination showed red cell casts and mild proteinuria. His blood urea and creatinine was increased.<br>(a) What is your probable diagnosis?<br>(b) Discuss in detail the causes that can lead to this clinical syndrome.                                                                                       | 648      | 909      | J15(RS3) |
| 2. A 50-year-old male presented with facial puffiness and proteinuria 5 g/day. His serum albumin was found to be 2.0 g/dL. His urine showed fat globules.<br>(a) What is your diagnosis?<br>(b) Discuss in detail the causes of this clinical syndrome.                                                                                                                                                                                                     | 648      | 914      | D13(RS3) |
| 3. What is nephrotic syndrome? Enlist four important causes of nephrotic syndrome in pediatric age group. Add a note on its pathophysiology.                                                                                                                                                                                                                                                                                                                | 648      | 914      | J15      |
| 4. Classify glomerulonephritis. Discuss the etiopathogenesis of acute post-streptococcal glomerulonephritis. Describe the light microscopy, immunofluorescence and electron microscopic findings of same.                                                                                                                                                                                                                                                   | 650, 653 | 900, 909 | D08      |
| 5. A 8-year-old boy was admitted with history of puffiness of face and passing of red colored urine, following upper respiratory tract infection 2 weeks earlier. Urine examination showed moderate proteinuria and hematuria.<br>(a) What is your most probable diagnosis?<br>(b) Describe the etiopathogenesis of the condition.<br>(c) Give the morphology of the organ affected.<br>(d) List the investigations that you would do to confirm diagnosis. | 652      | 909      | D07(RS2) |

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	HRMN	RBNS	
6. A 8-year-old boy presented with oliguria, hypertension and smoky urine. What is your diagnosis? Discuss the etiology and pathology of this condition.	652	909	J04
7. Discuss etiopathogenesis and morphology of acute glomerulonephritis.	653	909	J12
8. Describe the etiopathogenesis, gross and microscopy of chronic pyelonephritis.	669	933	J03
9. Classify tumors of kidney. Describe etiopathogenesis and morphology of renal cell carcinoma in detail.	681	953	D11(RS2), D14(RS3)
<b>Short Essays</b>			
1. Adult polycystic kidney disease.	645	945	D03
2. Nephrotic syndrome.	648	914	D12(RS3)
3. Definition and causes of nephritic syndrome.	647	909	J08(RS2), D09
4. Causes of nephrotic syndrome.	648	914	J14(RS3)
5. Pathogenesis of glomerulonephritis.	649	903	J16
6. Circulating immune complex nephritis.	651	905	D05
7. Morphology of acute glomerulonephritis.	653	910	D04
8. Rapidly progressive (crescentic) glomerulonephritis.	654	912	D03, D10
9. Classification and pathogenesis of rapidly progressive glomerulonephritis.	654	912	J06
10. Goodpasture syndrome.	655	912	D09(RS2), J13
11. Morphology (light microscopy) of minimal lesion glomerulonephritis/minimal change disease.	656	917	J16(RS3), D09
12. Etiopathogenesis and pathology of membranous glomerulonephritis.	657	915	J09
13. End-stage kidney.	661	925	D07
14. Renal changes in diabetes mellitus (diabetic nephropathy).	664	1118	A07(RS2), D08(RS2), J09(RS2), J12(RS2), D13(RS3), D16(RS3), J02, D10, J11, D11, D14
15. Pyelonephritis.	667	930	J07(RS2)
16. Complications of acute pyelonephritis.	669	932	J06

Contd... —

Contd...

	HRMN	RBNS	
17. Chronic pyelonephritis (pathology).	669	934	J09(RS2), D11(RS2), D12, J13
18. Irregular contracted kidney.	677	935	D01
19. Xanthogranulomatous pyelonephritis.	669	934	D10
20. Pathogenesis of essential hypertension.	676	490	J02
21. Kidney changes in hypertension.	677	938	D05, J08, D16
22. Benign nephrosclerosis.	677	938	A07(RS2)
23. Renal calculi (nephrolithiasis)—types and pathogenesis.	672	951	D09, J13
24. Etiopathogenesis of renal calculi.	672	951	J11(RS2)
25. Hydronephrosis.	674	950	D02
26. Renal cell carcinoma—gross and microscopic features.	681	953	J07, J10, J11, J14
27. Wilm's tumor (nephroblastoma).	683	479	J12(RS2), J00, D00, D01, D03, D05, D11, J12, D12
28. Transitional cell carcinoma of bladder.	687	964	D16

**Short Answers**

1. Four causes of hematuria.	—	—	J13
2. Name renal function tests.	639	—	D01
3. Uremia and azotemia.	641	898	D07
4. What is uremia?	641	898	D15
5. Horseshoe kidney.	643	—	J00
6. Cystic disease of kidney.	643	945	J12(RS2), J16(RS3)
7. Adult polycystic kidney disease.	645	945	D08
8. Gross features of adult polycystic kidney.	645	947	A07(RS2), J06
9. Medullary sponge kidney.	646	948	J09
10. Laboratory findings in nephritic syndrome.	647	909	A07(RS2)
11. Urinary findings in acute nephritis.	647	913	D02
12. Features of nephrotic syndrome.	648	914	J08, D15
13. Causes of nephritic syndrome.	648	909	J08, D12
14. Four causes of nephrotic syndrome.	648	914	J04
15. Microscopy of kidney in acute post-streptococcal proliferative glomerulonephritis.	653	910	D09
16. Causes of large white kidney.	654	—	J08

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	HRMN	RBNS	
17. Etiology of crescentic glomerulonephritis.	654	912	D07
18. Light microscopy in minimal change disease.	656	917	D04
19. Classification of membranoproliferative glomerulonephritis.	658	920	D13
20. Focal segmental glomerulosclerosis.	660	918	A07
21. Causes of end-stage kidney.	661	925	J02, D15
22. Renal lesions in diabetes mellitus (lesions of diabetic nephropathy).	664	1118	D15(RS3), J09, J12, D15
23. Nodular glomerulosclerosis—morphology.	664	1118	J04, D09
24. Kimmelstiel-Wilson lesion.	664	1118	D07, D12, J16
25. Microscopy of chronic pyelonephritis.	669	934	D09(RS2), D10(RS2), D02, J11
26. Flea bitten kidney.	653	939	D15(RS3), D14
27. Causes of flea bitten kidney.	653	939	J10
28. Enumerate types of renal stones.	672	951	D10(RS2), J14(RS3), J05, J10, D12
29. Staghorn calculi.	673	952	J09(RS2), D01
30. Struvite stones.	673	952	D08
31. Write four conditions when renal stones occur.	673	951	A07
32. Causes of hydronephrosis.	674	950	D99, D03
33. Gross morphology of kidney in hydronephrosis.	674	950	D07(RS2)
34. Microalbuminuria.	677	1120	J15(RS3)
35. Enumerate four microscopic variants of renal cell carcinoma (classification of renal cell carcinoma).	682	953	J06, A07
36. Morphology of renal cell carcinoma.	682	954	A07(RS2), D12(RS3), D04, J16
37. Wilm's tumor (nephroblastoma).	683	479	D99, J07, D16
38. Morphology of Wilm's tumor.	684	480	J09(RS2), J16(RS3), J09
39. Causes of urinary bladder (urothelial) tumors.	687	964	D09(RS2), J11(RS2)
40. Transitional cell papilloma.	687	965	D99
41. Morphology of transitional cell carcinoma of bladder.	687	965	J04

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HRMN RBNS

**CHAPTER 21****THE MALE REPRODUCTIVE SYSTEM AND PROSTATE****Long Essay**

- |                                                                                                                                |             |             |                            |
|--------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------------------------|
| 1. Classify testicular tumors. Describe etiology, morphology and clinical features of most common testicular tumor (seminoma). | 695,<br>697 | 975,<br>976 | J12(RS2),<br>D13(RS3), J10 |
|--------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------------------------|

**Short Essays**

- |                                                                    |     |     |                                                                   |
|--------------------------------------------------------------------|-----|-----|-------------------------------------------------------------------|
| 1. Cryptorchidism.                                                 | 691 | 972 | D13                                                               |
| 2. What are the causes of male infertility?                        | 691 | 973 | D00                                                               |
| 3. Seminoma of testis (morphology).                                | 697 | 976 | J07(RS2),<br>J13(RS3),<br>J14(RS3),<br>J16(RS3), J11,<br>J14, D14 |
| 4. Non-seminomatous germ cell tumors of testis.                    | 699 | 977 | J06                                                               |
| 5. Premalignant lesions of penis.                                  | 702 | 971 | D10(RS2)                                                          |
| 6. Benign prostatic hyperplasia (etiopathogenesis and morphology). | 705 | 982 | D11(RS2), J01,<br>D01, D10, J13,<br>J15, D16                      |
| 7. Pathogenesis of nodular hyperplasia of prostate.                | 705 | 982 | D08                                                               |

**Short Answers**

- |                                                      |     |             |                                    |
|------------------------------------------------------|-----|-------------|------------------------------------|
| 1. Enlist four important causes of male infertility. | 691 | —           | D15                                |
| 2. Cryptorchidism.                                   | 691 | 972         | D05                                |
| 3. Complications of undescended testis.              | 691 | 973         | D00                                |
| 4. Name germ cell tumors of testis.                  | 695 | 975         | J02                                |
| 5. Classification of testicular tumors.              | 695 | 975         | D09(RS2), J04,<br>D09              |
| 6. Spread of testicular neoplasms.                   | 696 | 979         | D07                                |
| 7. Gross features of seminoma.                       | 697 | 976         | J13                                |
| 8. Microscopic appearance of seminoma.               | 697 | 976         | A07(RS2),<br>J10(RS2), D03,<br>D11 |
| 9. Serological markers in testicular tumors.         | 697 | 988         | J16                                |
| 10. Human chorionic gonadotropin (hCG).              | 699 | 1031        | D12                                |
| 11. Condyloma acuminatum.                            | 702 | 970,<br>997 | D08                                |

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Contd...

	HRMN	RBNS	
12. Premalignant lesions of penis.	702	971	J07(RS2), J15(RS3), J05, J07, J14
13. Granulomatous prostatitis.	705	981	D99
14. Benign enlargement of prostate.	705	982	J13(RS3)
15. Morphology of nodular hyperplasia of prostate.	705	982	D14(RS3)
16. Microscopy of benign hyperplasia of prostate.	706	983	J10
17. Secondary effects of benign prostatic hyperplasia.	706	983	J03
18. Prostatic intraepithelial neoplasia (PIN).	707	985	J05
19. Spread of carcinoma prostate.	708	988	J08
20. Staging of prostatic cancer.	708	988	J06
21. Prostate-specific antigen.	708	988	D12

**CHAPTER 22****THE FEMALE GENITAL TRACT****Long Essays**

- |                                                                                                                                                                                                                                                                                                                                               |             |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|---------------|
| 1. Describe the etiology, pathology and spread of carcinoma cervix.                                                                                                                                                                                                                                                                           | 715,<br>717 | 1004          | J00           |
| 2. A 48-year-old lady presented with bleeding per vagina. Per speculum examination showed an ulceroproliferative growth involving the external os which bleeds on touch.<br>(a) What is the most probable diagnosis and why?<br>(b) What is the etiopathogenesis of this condition?<br>(c) Add a note on screening method for this condition. | 717         | 1004          | D16(RS3)      |
| 3. Classify ovarian tumors. Describe the morphological features of surface epithelial tumors.                                                                                                                                                                                                                                                 | 731         | 1023          | J08(RS2), D12 |
| 4. Classify tumors of ovary. Describe the gross and microscopy of mucinous tumors of ovary.                                                                                                                                                                                                                                                   | 731,<br>733 | 1023,<br>1026 | J02           |
| 5. Classify ovarian tumors. Describe germ cell tumors.                                                                                                                                                                                                                                                                                        | 731,<br>735 | 1023,<br>1029 | D07, D16      |
| 6. Classify ovarian tumors. Describe gross and microscopic features of dermoid cyst of ovary.                                                                                                                                                                                                                                                 | 731,<br>736 | 1023,<br>1029 | J11(RS2)      |

Contd...



Contd...

	HRMN	RBNS	
7. Classify ovarian tumors. Describe gross and microscopy of choriocarcinoma.	731, 743	1023, 1041	D10(RS2)
8. Discuss pathogenesis and morphology of trophoblastic disease.	741	1039	J12
<b>Short Essays</b>			
1. Cervical intraepithelial neoplasia.	714	1003	J07(RS2), D15
2. Carcinoma cervix—etiology and pathology.	715	1002	A07(RS2), D07(RS2), J16
3. Role of virus in carcinoma of cervix.	716	1002	D03
4. Adenomyosis uterus.	721	1012	J05
5. Endometriosis.	722	1010	D12(RS3), D01, D11
6. Endometrial hyperplasia.	723	1012	J06, A07
7. Chocolate cyst of ovary.	722	1012	J14
8. Leiomyoma—sites, histological types, gross and microscopy.	726	1019	D15(RS3)
9. Leiomyoma—uterus (morphology).	726	1019	J13(RS3), J07, D09
10. Ectopic pregnancy.	729	1036	A07
11. Classification of ovarian tumors.	731	1023	D03
12. Classify ovarian tumors and discuss in brief about mature cystic teratoma.	731, 736	1023, 1029	J13
13. Serous tumors of ovary.	732	1024	J08
14. Serous cystadenoma of ovary.	732	1024	J04
15. Morphology of mucinous cystadenoma of ovary.	734	1026	D08(RS2)
16. Teratoma ovary.	735	1029	A07(RS2)
17. Dermoid cyst of the ovary.	736	1029	J12(RS2)
18. Dysgerminoma—morphology.	737	1030	D07(RS2), D09(RS2)
19. Krukenberg's tumor of the ovary.	740	1034	D10
20. Trophoblastic tumors.	741	1039	D15(RS3)
21. Hydatidiform mole.	741	1039	D14(RS3), D00, D02, D13, D14
22. Choriocarcinoma (morphology and prognosis).	742	1041	J10(RS2), J14(RS3), D04, D08, J11
<b>Short Answers</b>			
1. Bartholin's cyst.	710	996	D07
2. Trichomoniasis.	712	994	D05

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Contd...

	HRMN	RBNS
3. Cervical intraepithelial neoplasia (CIN).	714	1003 D15(RS3), J07, J09, D11, J12
4. Classification of cervical intraepithelial neoplasia.	715	1003 D13
5. Risk factors for carcinoma cervix.	715	1002 J01, D01
6. Diagnosis of carcinoma in cervix.	716	1006 D00
7. Cervical intraepithelial neoplasia grade III (CIN III).	716	1004 D08
8. Morphological changes seen in carcinoma of cervix.	717	1005 D11(RS2)
9. Hormonal changes in endometrium.	720	1007 D12(RS3)
10. Adenomyosis.	721	1012 J07(RS2), J11
11. Endometriosis.	722	1010 J12(RS2), D99, D05
12. Morphology of endometriosis of ovary.	722	1012 J14(RS3)
13. Chocolate cysts of ovary.	722	1012 D01
14. Enumerate the types of endometrial hyperplasia.	723	1013 D09
15. Causes of endometrial hyperplasias.	723	1013 D02
16. Morphology of cystoglandular hyperplasia.	723	— D03
17. Endocervical polyp.	723	1002 D05
18. Risk factors for "endometrial carcinoma".	724	1014 D10
19. Classify tumors of uterus.	723	— J03
20. Types of leiomyoma.	726	1020 J10(RS2), D00, J11, D11
21. Microscopy of leiomyoma.	726	1020 J15
22. Staging of endometrial carcinoma.	726	1018 J09
23. Ectopic pregnancy.	729	1036 D01
24. Sites of ectopic pregnancy.	729	1036 J10(RS2)
25. Name four ovarian tumors.	731	1023 J12
26. Classification of ovarian germ cell tumors.	731	1023 J06
27. Name germ cell tumors of the ovary.	731	1023 J00
28. Borderline tumors of ovary.	731	1025 D05, D16
29. Mucinous cystadenoma of ovary.	732	1026 D99
30. Brenner's tumor—microscopy.	734	1028 J15(RS3), J03
31. Enlist types of ovarian teratomas.	736	1029 J15
32. Benign cystic teratoma of ovary (morphology).	736	1029 J04, J07, D09

Contd...

Contd...

	HRMN	RBNS	
33. Dermoid cyst—ovary.	736	1029	J07(RS2), D99, J05, D10
34. Struma ovarii.	737	1030	D99, J01
35. Dysgerminoma (microscopy).	737	1030	D04, J05, J07
36. Meig's syndrome.	—	1033	D00
37. Mention sex cord stromal tumors of ovary.	731	1023	J10
38. Kruckenberg's tumor (morphology).	740	1034	J16(RS3), D16(RS3), J01, D02, J14
39. Enlist types of vesicular moles.	741	1039	J14
40. Hydatidiform mole (etiopathogenesis).	741	1039	D13(RS3), J15(RS3)
41. Write the karyotype and morphological features of complete mole.	741	1040	D10
42. Morphology of hydatidiform mole.	741	1040	D07(RS2), D03
43. Laboratory diagnosis of hydatidiform mole.	741	1040	J05
44. Morphology of vesicular mole.	742	1040	J14(RS3)
45. Differences between hydatidiform mole and choriocarcinoma.	—	—	D08(RS2)
46. Microscopy of choriocarcinoma.	743	1041	D11
47. Laboratory diagnosis of choriocarcinoma.	742	1041	J07

**CHAPTER 23****THE BREAST****Long Essays**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |            |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|----------|
| <p>1. A 52-year-old female presented with lump in the right breast which was noticed 6 months back. On examination of the lump it was firm to hard and fixed to the underlying structures and skin with 5 palpable lymph nodes in the right axilla. After the FNAC she underwent mastectomy:</p> <p>(a) What is the probable diagnosis?</p> <p>(b) Describe the etiopathogenesis of the condition.</p> <p>(c) Write the morphology of the lesion in the breast.</p> | 750      | 1053       | D08(RS2) |
| <p>2. Classify tumors of the breast. Discuss the etiopathogenesis and pathology of carcinoma breast.</p>                                                                                                                                                                                                                                                                                                                                                            | 751, 750 | 1057, 1053 | J01      |

Contd... —

Contd...

	HRMN	RBNS	
3. Classify breast tumors. Discuss pathology of medullary carcinoma of breast.	751, 754	1057, 1066	J11
4. Discuss lobular and medullary carcinoma of breast.	752, 754	1065, 1066	A07

**Short Essays**

1. Non-tumorous causes for breast lump.	746	1048	D01
2. Fibrocystic disease of breast/fibrocystic change.	746	1048	D15(RS3), J05, J10, D14
3. Fibroadenoma of breast.	748	1069	J13(RS3), D14(RS3), D16(RS3), J07
4. Phyllodes tumor of breast (cystosarcoma phyllodes).	749	1069	D07(RS2), J12(RS2), J09, D12
5. Etiology of carcinoma of breast.	750	1053	J04
6. Classification of tumors of breast.	751	1057	J03
7. Carcinoma in situ of the breast.	751	1057	D13
8. Lobular carcinoma of breast (morphology).	752	1059	D08
9. Scirrhous carcinoma of breast.	752	1060	J16(RS3)
10. Medullary carcinoma of breast (morphology).	754	1065	J08(RS2), J06, D11
11. Paget's disease of the nipple (breast).	755	1057	D03, D09
12. Prognostic factors of carcinoma breast.	757	1066	J02, J09

**Short Answers**

1. Plasma cell mastitis.	746	—	D01, D02
2. Galactocele.	746	—	D01
3. Enlist the fibrocystic changes of breast.	746	1048	J15
4. Morphology of fibrocystic disease of breast.	747	1048	D08
5. Gynecomastia.	748	1049	D12(RS3), D99, D05, D07, J09, D16
6. Fibroadenoma.	748	1069	J07(RS2), J09(RS2)
7. Microscopy of fibroadenoma.	749	1069	J12
8. Phyllodes tumor (morphology).	749	1069	J11(RS2), D13(RS3), D15(RS3), D99, D11, J13

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Contd...

	HRMN	RBNS	
9. Etiology of breast cancer.	750	1053	D07, J16, D16
10. Enumerate four risk factors for breast cancer.	750	1053	D09
11. Classification of breast carcinoma.	751	1057	J15(RS3)
12. Gross morphology of carcinoma breast.	753	1062	D07(RS2), D09(RS2)
13. Histopathological types (microscopic variants) of breast carcinoma.	753	1065	J08, D14
14. Morphology of infiltrating duct carcinoma.	752	1062	J10(RS2), J04
15. Microscopic appearance of scirrhous carcinoma of breast.	752	1063	D11(RS2)
16. Morphology of duct papilloma of breast.	752	1049	D12(RS3)
17. Paget's disease of breast (nipple)—morphology.	755	1057	D10(RS2), J00, D08, J14, J16
18. Spread of breast cancer.	757	1066	J10
19. Prognostic factors of carcinoma of breast.	757	1066	J13(RS3), D16(RS3), J13, D15, D16

**CHAPTER 24****THE SKIN****Short Essays**

1. Discuss briefly about precancerous lesions of the skin.	773	1154	J10(RS2), J01
2. Basal cell carcinoma (rodent ulcer)—morphology and pathogenesis.	775	1155	J07(RS2), D13(RS3), J16(RS3), D16(RS3), D00, D01, A07, J08, J13, D14
3. Nevus.	777	1144	J01
4. Malignant melanoma (growth patterns and morphology).	778	1147	J08(RS2), J09(RS2), J15(RS3), D02, D07
5. Dermatofibrosarcoma protuberans.	780	1158	A07

**Short Answers**

1. Define macule and papule.	—	1143	D15
2. Pilomatrixoma.	—	1153	D16(RS3)
3. Xeroderma pigmentosum.	761	324	J12(RS2)

Contd...

Contd...

	HRMN	RBNS	
4. Molluscum contagiosum (microscopy).	764	1175	J10(RS2), D16(RS3), J00, D01, J02, D15
5. Lupus vulgaris.	765	—	D00
6. Enlist four vesiculobullous lesions of skin.	766	1167	D15
7. Psoriasis.	768	1165	J14(RS3)
8. Sebaceous cyst.	772	—	D00
9. Mention premalignant lesions of skin.	773	1154	J02, J11
10. Bowen's disease.	773	—	J01
11. Etiology of skin cancer.	774	1155	J16
12. Etiology of squamous cell carcinoma of skin.	774	1155	J04
13. Morphology of squamous cell carcinoma of skin.	774	1155	D08(RS2), J06
14. Basal cell carcinoma (rodent ulcer)—etiology, morphology.	775	1155	A07(RS2), J00, D02, D03, J05, J07, D08, D11, D13, D15
15. Name the various nevi.	778	1144	J15
16. Name pigmented lesions of skin.	778	1144	J03
17. Junctional nevus.	778	1144	J08
18. Invasive mole.	—	1145	J06
19. Melanoma.	778	1147	D99
20. Clinical warning signs of melanoma in a mole.	778	1150	D04
21. What is ABCD of melanoma?	778	1150	D15
22. Four sites of malignant melanoma.	778	—	D09
23. Microscopy of malignant melanoma.	779	1149	J10(RS2), J14(RS3), J11
24. Sezary's syndrome (mycosis fungoides).	781	1160	D00, D07, J10, J16

**CHAPTER 25****THE ENDOCRINE SYSTEM****Long Essays**

- |                                                                                                     |             |               |     |
|-----------------------------------------------------------------------------------------------------|-------------|---------------|-----|
| 1. Enumerate non-neoplastic lesions of thyroid. Discuss Hashimoto thyroiditis.                      | 795         | 1086          | J08 |
| 2. Discuss the pathogenesis of type 2 diabetes mellitus. Mention its major long-term complications. | 812,<br>815 | 1111,<br>1115 | D13 |

— Contd... —

Contd...

	HRMN	RBNS
<b>Short Essays</b>		
1. Cushing's syndrome.	788	1123 J09(RS2), J11(RS2), A07
2. Pheochromocytoma.	790	1134 A07(RS2), J10(RS2), J15(RS3), J16(RS3), D16(RS3), D99, D02, J03, J06, D12, D15
3. Neuroblastoma.	791	475 D07(RS2)
4. Hashimoto's thyroiditis (etiopathogenesis, morphology).	795	1086 J08(RS2), D10(RS2), D11(RS2), J13(RS3), D14(RS3), D15(RS3), J03, J04, J05, D11, J13, J14, D14, J16
5. Grave's disease (pathogenesis, pathology).	796	1089 D16(RS3), D99, J02, D08, J11, J15, D16
6. Toxic goiter.	796	1089 J07(RS2)
7. What are the differences between a goiter and adenoma of thyroid?	—	— D00
8. Iodine deficiency goiter.	797	1091 D12(RS3)
9. Stages in evolution of multinodular goiter.	798	1091 D10
10. Multinodular goiter (morphology).	798	1091 D08(RS2), J11(RS2), J16(RS3), D02, D07, J16
11. Classify thyroid tumors. Describe in detail any one of them.	800	1094 J15(RS3)
12. Thyroid adenoma.	800	1093 D15(RS3)
13. Mention the major subtypes of carcinomas of the thyroid. Write a note on genetic alterations in follicular cell-derived malignancies of the thyroid.	802	1094, 1095 D13
14. Follicular adenoma of thyroid.	800	1093 D04
15. Papillary carcinoma of thyroid (histopathology).	802	1095 J09(RS2), D13(RS3), J14(RS3), J07, J09, J10, D12

Contd... —



Contd...

	HRMN	RBNS
16. Medullary carcinoma of thyroid.	804	1099 D99, J00, D09, D15
17. Etiopathogenesis of type I diabetes mellitus.	809	1109 J11(RS2)
18. Laboratory investigations in diabetes mellitus.	816	1106 D14
19. Oral glucose tolerance test.	817	— D16
20. Islet cell tumor of pancreas.	818	1121 D04
21. Multiple endocrine neoplasia.	819	1136 J14(RS3)

**Short Answers**

1. Enlist four types of pituitary adenoma.	786	1075 J08
2. Cushing disease.	788	1123 J13
3. List four causes of Cushing syndrome.	788	1123 J09
4. Tumors of adrenal medulla.	790	1133 J12
5. Pheochromocytoma.	790	1134 D11(RS2), J16
6. Morphological features of pheochromocytoma.	790	1134 J08(RS2)
7. Neuroblastoma.	791	475 D16
8. Microscopic features of neuroblastoma.	791	476 D08(RS2), D09(RS2)
9. Pathogenesis of thyrotoxicosis.	793	1083 J12
10. Hashimoto's thyroiditis (morphology).	795	1086 D08(RS2), D05
11. Hurthle cell.	795	1087 D14
12. Goitrogens.	798	1090 J06
13. Types of thyroid tumors.	800	1092 D11
14. Microscopy of thyroid adenoma.	800	1093 D08
15. Types of adenoma of thyroid.	800	1093 J11
16. Microscopic types of thyroid carcinoma.	802	1094 J10
17. Morphology of papillary carcinoma of thyroid.	802	1095 J10(RS2), J13(RS3), D14(RS3), D03, J14
18. Medullary carcinoma of thyroid.	804	1099 J13
19. Microscopy of medullary carcinoma thyroid.	804	1099 D09(RS2), D10(RS2)
20. Causes of primary hyperparathyroidism.	807	1101 J13
21. Pathogenesis of type II diabetes mellitus.	812	1111 D11(RS2)
22. List the complications of diabetes mellitus.	814	1113 J08(RS2), J15(RS3), J14

Contd...

Contd...

	HRMN	RBNS	
23. Oral glucose tolerance test (give only indications).	817	—	A07
24. Renal glycosuria.	817	—	D15(RS3)
25. HbA1C (glycosylated hemoglobin).	818	1113	J16(RS3), J13, J16
26. Zollinger-Ellison syndrome.	818	1121	J01, J03, D05, D12
27. Multiple endocrine neoplasia (MEN).	819	1136	D11(RS2)
28. MEN 1 syndrome.	819	1136	D12
29. Enlist four important features of MEN type I (multiple endocrine neoplasia).	819	1136	J15

**CHAPTER 26****THE MUSCULOSKELETAL SYSTEM****Long Essays**

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|-------------------------------------------------------|
| 1. A 12-year-old boy complained of pain and swelling of knee joint. On X-ray a tibial, metaphyseal lytic lesion invading the cortex and showing periosteal elevation was seen.<br>(a) What is your most probable diagnosis?<br>(b) Describe the etiology of the condition.<br>(c) Describe the gross and microscopy of the condition.<br>(d) Describe the modes of spread of the lesion. | 822      | 1198       | D09(RS2)                                              |
| 2. Classify bone tumors and describe in detail osteogenic sarcoma/osteosarcoma (etiology, types, pathogenesis, gross and microscopy morphological findings).                                                                                                                                                                                                                             | 832      | 1197, 1198 | J09(RS2), J10(RS2), J14(RS3), D15(RS3), J16(RS3), J04 |
| 3. Classify tumors of the bone. Describe the etiopathogenesis, gross and microscopic features of osteoclastoma (giant cell tumor of bone).                                                                                                                                                                                                                                               | 832, 837 | 1197, 1203 | J13(RS3)                                              |
| 4. Enumerate lytic lesions of bone. Discuss gross and microscopy of osteoclastoma.                                                                                                                                                                                                                                                                                                       | 837      | 1203       | A07                                                   |

**Short Essays**

- |                            |     |      |                    |
|----------------------------|-----|------|--------------------|
| 1. Osteomyelitis           | 822 | 1195 | D14(RS3), J15(RS3) |
| 2. Pyogenic osteomyelitis. | 822 | 1195 | J02, J10, J16      |
| 3. Chronic osteomyelitis.  | 824 | 1196 | J07(RS2), D09, D14 |

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	HRMN	RBNS
4. Tuberculous osteomyelitis.	824	1196 J00
5. Classification of bone tumors.	832	1197 J03
6. Osteosarcoma (morphology, radiological features).	832	1198 D08(RS2), J11(RS2), J05, J08, D11, D13
7. Chondrosarcoma.	837	1202 D07(RS2), J01
8. Osteoclastoma (giant cell tumor of bone).	837	1203 A07(RS2), J10, D12, J14
9. Ewing's tumor/Ewing sarcoma.	839	1203 D16(RS3), J07, D07, D15
10. Rheumatoid arthritis.	843	1209 D12(RS3), D13(RS3), D16(RS3)
11. Pathogenesis of rheumatoid arthritis.	843	1209 J02
12. Acute gout.	845	1214 A07
13. Gouty arthritis.	845	1214 D10(RS2)
14. Pathogenesis of gouty arthritis.	845	1215 J12(RS2)
15. Pathogenesis and pathology of gout.	845	1215 J03
16. X-linked muscular dystrophy.	850	1242 J13
<b>Short Answers</b>		
1. Acute osteomyelitis.	822	1195 D13
2. Morphology of pyogenic osteomyelitis.	823	1195 D11(RS2)
3. Sequestrum.	823	1195 D07(RS2), J13(RS3), J01, D01, D02, J11, D15
4. Involucrum.	823	1195 A07(RS2)
5. Complications of pyogenic osteomyelitis.	823	1196 J04, J06, D08
6. Chronic osteomyelitis.	824	1196 J12
7. Renal osteodystrophy.	827	1192 D15(RS3)
8. Pott's spine.	—	1196 D13(RS3)
9. Paget's disease of bone.	828	1189 D16(RS3), D99, D07
10. Osteoid osteoma.	832	1197 D05, J12, D16
11. Classification of bone tumors.	832	1197 A07(RS2), J10
12. Enumerate chondrogenic tumors/ cartilage producing tumors.	832	1197 D03, D14
13. Osteosarcoma (osteogenic sarcoma)— gross, microscopic and radiological appearance.	833	1199 J08(RS2), D12(RS3), J15(RS3), D10, D07, D15

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	HRMN	RBNS
14. Mention the histological types of osteogenic sarcoma.	833	— D09
15. Codman's triangle.	833	1198 J12
16. Sunray/soap bubble/onion skin appearances.	833, 837, 839	1203 D00
17. Gross and histopathology of osteochondroma.	835	1200 J09
18. Microscopy of chondroma.	836	1201 J00, D02
19. Morphology of chondrosarcoma.	837	1202 D14(RS3)
20. Name the giant cell lesions of bone.	837	1203 J16
21. Microscopy of osteoclastoma (giant cell tumors).	838	1204 D08, J12
22. Ewing's sarcoma.	839	1203 D15(RS3)
23. Morphology of Ewing sarcoma.	839	1203 D04, J06
24. Homer-Wright rosette.	—	1203 D14
25. Chordoma.	840	— J05, J07
26. Microscopic picture in rheumatoid arthritis.	844	1211 J13
27. Gout.	845	1214 J05, J07
28. Enlist four causes of gout.	845	1215 J15
29. Microscopic features of gout.	845	1216 J08(RS2), J12
30. Gouty tophi.	846	1216 J14(RS3), D05, D07
31. Synovioma.	846	— D99

**CHAPTER 27****SOFT TISSUE TUMORS****Short Answers**

1. Ganglion cyst.	847	1218	D15
2. Chromosomal translocations seen in synovial sarcoma.	853	1223	D13
3. Nodular fasciitis.	854	1221	J15
4. Myositis ossificans.	854	38	D00, J01, D15

**CHAPTER 28****THE NERVOUS SYSTEM****Short Essays**

1. TB meningitis.	868	1274	J13
2. Brain abscess—causes.	869	1273	D00, D01

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	HRMN	RBNS	
3. Subarachnoid hemorrhage.	874	1269	A07
4. Berry aneurysm.	874	1270	J00
5. Astrocytoma.	879	1306	J09(RS2), D14(RS3), J03
6. Morphology of glioblastoma multiforme.	879	1308	D10(RS2), D08
7. Oligodendroglioma.	880	1309	D11
8. Medulloblastoma.	881	1312	D09(RS2), J10(RS2), J05, J11, J14
9. Meningioma (morphology).	882	1314	J07(RS2), J08(RS2), D12(RS3), J15(RS3), D16(RS3), J02, J04, J08, D13, J15
10. Schwannoma.	885	1247	J13(RS3)
<b>Short Answers</b>			
1. Gitterzellen cells.	864	—	D99
2. TB meningitis.	868	1274	D12(RS3)
3. Brain abscess.	869	1273	D13(RS3), D14(RS3)
4. Neurosyphilis.	869	1274	D13
5. Subarachnoid hemorrhage—causes.	874	1269	D16(RS3), J00
6. Berry aneurysm.	874	1270	D00, J06, D08
7. Enlist three important microscopic features of Alzheimer's disease.	876	1290	J14
8. Classification of brain tumors.	878	—	D04
9. Name four CNS tumors.	878	1306	J12
10. Astrocytoma (microscopy).	879	1306	J11(RS2), D00
11. Medulloblastoma (morphology).	881	1312	D13(RS3), J14(RS3), D99, J06, D13
12. Meningioma (histological types, morphology).	882	1314	A07(RS2), J10(RS2), D11(RS2), J13(RS3), D99, J03, J10, J11, J16
13. Neurilemmoma.	885	—	J08
14. Microscopy of Schwannoma.	885	1247	D16(RS3), J15

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HRMN RBNS

**APPENDIX****BASIC DIAGNOSTIC CYTOLOGY****Short Essays**

- |                                                                 |     |     |                    |
|-----------------------------------------------------------------|-----|-----|--------------------|
| 1. Exfoliative cytology.                                        | 889 | 333 | J14                |
| 2. Papanicolaou (Pap) smear (Indications and importance).       | 889 | 333 | D14(RS3), D15      |
| 3. Fine needle aspiration cytology (FNAC) and its applications. | 899 | 333 | D14(RS3), D11, J15 |

**Short Answers**

- |                                                                        |          |     |                                             |
|------------------------------------------------------------------------|----------|-----|---------------------------------------------|
| 1. Exfoliative cytology (indications and importance).                  | 889      | 333 | J07(RS2), D07(RS2), J16(RS3), J00, J11, D13 |
| 2. Papanicolaou (Pap) smears.                                          | 889      | 333 | D09(RS2), J14(RS3), D05                     |
| 3. Enlist four common sites/organs for FNAC and exfoliative cytology.  | 890, 902 | 333 | D15                                         |
| 4. Uses of Pap smear.                                                  | 891      | 333 | D08(RS2)                                    |
| 5. Applications of Papanicolau's stain.                                | 891      | —   | J10(RS2)                                    |
| 6. Fixatives used in cytopathology.                                    | 898      | —   | D07                                         |
| 7. Name some fixatives used in histopathology and cytopathology.       | 898      | —   | J00                                         |
| 8. Aspiration cytology. Name the applications.                         | 899      | 333 | D99                                         |
| 9. Fine needle aspiration cytology.                                    | 899      | 333 | J12(RS2), D15(RS3)                          |
| 10. What is fine needle aspiration cytology? Mention its significance. | 899      | 333 | J09(RS2), D10(RS2), J05, J06, A07, J07      |
| 11. Four indications of FNAC.                                          | 902      | 333 | J13                                         |
| 12. Role of FNAC in pathology diagnosis.                               | 900      | 333 | J11(RS2), D13(RS3)                          |
| 13. Common organs in which FNAC is done.                               | 902      | 333 | D99                                         |

**MISCELLANEOUS****Short Answers**

- |                                                           |   |      |          |
|-----------------------------------------------------------|---|------|----------|
| 1. Enlist four common causes of dementia.                 | — | —    | J15      |
| 2. Enlist four placental abnormalities seen in eclampsia. | — | 1039 | J15      |
| 3. Cerebral toxoplasmosis.                                | — | 1279 | D13      |
| 4. Tubercous sclerosis.                                   | — | 1316 | J14(RS3) |

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	HRMN	RBNS
5. Tzanck test.	—	729 J14
6. Indications of bone marrow transplantation.	—	236 J13
7. Define cutaneous pustule and vesicle.	—	1143 J10
8. Define the following terms—ulcer, sinus, fistula, boil.	—	— J00
9. What are the degrees in burns?	—	— J00
10. Stones in various sites of the body.	—	— D00
11. Sites for squamous papilloma.	—	— D12
12. Define oligospermia and azoospermia.	—	— J01
13. Oligospermia.	—	— J16(RS3), J09, D13
14. Skeletal abnormalities of Marfan's syndrome.	—	144 D02
15. Definition of abscess and pus.	—	— J03
16. Mention two adhesion molecules of endothelium and its ligands on white blood cell (WBC).	—	76 D03
17. Erythroleukemia.	—	— D08
18. Ground glass hepatocytes.	—	— D08
19. Handling of infected material in HIV infection.	—	— J12(RS2)
20. Plasmapheresis.	—	— J12(RS2)
21. Myeloperoxidase reaction.	—	— J13

## HRMNPR

## Section IV: Clinical Pathology

## Short Essays

1. Importance of sputum examination.	—	D00
2. Write briefly about sputum examination.	—	J01
3. Nonselective proteinuria.	—	D03
4. Prothrombin time.	—	J03, J16
5. Coomb's test.	—	D16(RS3), D03, D09
6. Direct antiglobulin test.	—	D10
7. Anticoagulants—types; used in hematology laboratory.	168	J12(RS2), D16(RS3), J06, A07, J15
8. Methods of hemoglobin estimation.	170	D08(RS2), J12(RS2)

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		HRMNPR
9. Erythrocyte sedimentation rate (ESR).	189	J01, J04, J07, D10, J13, D15, D16
10. Packed cell volume—definition, methods of estimation and its significance.	191	J08(RS2), J00, A07, J12
11. ABO blood group system.	199	D00
12. Methods of blood grouping.	199	J13(RS3)
13. Crossmatching.	202	D13
14. Importance of blood grouping and crossmatching.	202	J00
15. Write briefly about massive proteinuria.	234	D00
16. Proteinuria—causes and classification.	234	J01, D02, D14
17. Glycosuria.	235	J14
18. Ketonuria.	236	D10
19. Microscopic examination of urine.	239	J15(RS3)
20. Urinary casts (urinary sediments).	240	J02, D02, J03, J16
21. Crystals in urine.	242	D16
22. Semen analysis.	246	J02, J03, D05, J07
23. CSF findings in various types of meningitis.	250	J11(RS2), J13(RS3)
24. CSF findings in pyogenic meningitis.	250	D12
25. CSF findings in tuberculous meningitis.	250	J05
<b>Short Answers</b>		
1. Liver biopsy—four indications/contraindications.		J02, J03, D04, J06, D14
2. Occult blood in stool.	—	D14
3. Sputum examination—indications.	—	D14
4. Minor crossmatch.	—	J15
5. Stains for demonstration of fungi.	—	D10
6. Osmotic fragility test.	—	J16(RS3), D12
7. Menghini's needle.	—	D12
8. Four causes for hemorrhagic pleural fluid.	—	D10(RS2)
9. Name the liver function tests.	—	D12(RS3), J15(RS3), J00, D00, J05
10. Name renal function tests.	—	J10(RS2)
11. Four causes hemoglobinuria.	—	D09
12. Indications of lumbar puncture.	—	D15(RS3), D00, D02, J03, J05, J16

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		HRMNPR
13. Mention the complications of venipuncture.	—	J01
14. CSF in neurosyphilis.	—	J01, D01
15. Prothrombin time.	—	J16(RS3), J05, D11
16. What is International Normalized Ratio (INR)?	—	J14
17. Tourniquet test.	—	D11
18. Coomb's test.	—	D07(RS2), J11, J13, D13, J15, J16
19. Direct Coomb's test—procedure and conditions where it is positive.	—	A07(RS2), D99, J05
20. Mantoux test.	—	J04
21. Screening of blood donor—enumerate tests to done.	—	J05
22. Blood urea nitrogen.	—	A07
23. Importance of peripheral smear examination.	—	A07
24. Oval fat bodies and lipid casts.	—	D10
25. Chyluria.	—	D07
26. Significance of hemoglobin electrophoresis in anemias.	—	D07(RS2)
27. Enlist six hematological parameters obtained on automated hematological analyzer.	—	D15
28. Functions of each component of CPD-A solution in a blood bag.	—	D15
29. Forward and reverse typing of blood grouping.	—	J13
30. Frozen section—indications/uses.	13	J08, D09
31. List some special stains used in histopathology.	16	D10(RS2), J00
32. Special stains for fat in tissues and the result.	16	D08(RS2), D02, J09, J12
33. How do you obtain plasma and serum?	167	D99
34. Anticoagulants—mention three with mode of action/used in laboratory/used in blood bank.	168	J07(RS2), D09(RS2), J14(RS3), D14(RS3), J01, J05
35. Ethylenediaminetetraacetic acid (EDTA).	168	D16
36. Two uses of trisodium citrate as an anticoagulant in hematology.	168	D10(RS2), J02
37. Double oxalate mixture. What is it? When is it used?	168	D99, D03
38. Methods of hemoglobin estimation.	170	J09(RS2), J02, J05, J15

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		HRMNPR
39. Chemical methods of hemoglobin estimation.	170	J13(RS3)
40. What is "complete blood count"?	174	J14
41. What are Romanowsky stains? Give examples.	182	D07(RS2), D12(RS3), J10(RS2), J13(RS3), J01
42. Erythrocyte sedimentation rate (ESR)—methods to estimate, anticoagulants used, stages, factors affecting, normal values, two conditions in which it is raised.	189	J09(RS2), J12(RS2), D12(RS3), J13(RS3), D99, D02, D14, D16
43. Westergren's method of ESR.	190	J16(RS3)
44. Packed cell volume (hematocrit)—define and its significance.	191	D09(RS2), D11(RS2), J14(RS3), J11, D16
45. What is buffy coat? Mention its importance.	192	J09(RS2), D10(RS2), J16(RS3), D01, J02
46. Normal range of BT, CT, PT and aPTT.	196	J14
47. Bleeding time.	196	J14(RS3)
48. Clotting time—definition and methods.	197	D02
49. Blood grouping.	199	D12(RS3)
50. Rh factor.	201	D11(RS2)
51. What is Rh blood grouping?	201	D99
52. Significance of crossmatching and different methods of crossmatching.	202	D10(RS2)
53. Bone marrow trephine biopsy/examination—indications (absolute), needle used.	211	D12(RS3), J13(RS3), D15(RS3), J01, J02, D02, D11
54. Causes of dry tap of dry tip in bone marrow aspiration.	213	J11(RS2), D13(RS3)
55. Hemoparasites.	215	D07(RS2), D10(RS2), J00, J03, D13
56. Urine examination—sample collection and preservatives.	231	D09(RS2), D12(RS3)
57. Physical examination of urine.	231	J11(RS2), D13(RS3), J06, A07, J15

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	HRMNP	
58. Name the test done in a routine detailed examination of urine.	231	J10(RS2), J00
59. Volume of urine.	231	D07
60. Oliguria.	231	D15(RS3)
61. Specific gravity of urine—normal value and methods of estimation/causes of increased and decreased specific gravity of urine.	232	J14(RS3), D02, J12
62. What is low fixed specific gravity of urine? Write its importance.	232	D07(RS2)
63. Fixed specific gravity urine.	233	J10
64. Proteinuria—define, causes, tests (bedside).	233	D08(RS2), D09(RS2), D10(RS2), D12(RS3), J12, D15
65. Sulfosalicylic acid test.	233	J14(RS3)
66. Glucosuria—causes and methods for its detection.	235	J11(RS2), D13(RS3), J05
67. Benedict's test—principle.	235	D07(RS2), D15(RS3)
68. Ketonuria—ketone bodies found in urine, causes (nondiabetic) and tests for detection.	236	J09(RS2), J10(RS2), J16(RS3), J02
69. Rothera's test.	236	J08
70. Mention the bile salts found in urine and the test for detection.	236	J09(RS2), J10
71. Hay's sulfur test.	236	J16(RS3)
72. Urobilinogen in urine (in jaundice).	237	D00, D10
73. Bile pigments in urine.	237	D13
74. Principle of Bazedine test.	238	D09
75. List the causes of hematuria (renal causes).	238	D11(RS2), J02, J12, D14
76. Microscopy of urine.	239	J11
77. Urinary casts.	240	J00, J05
78. What are the crystals found in urine?	242	D07(RS2)
79. Semen analysis in infertility—collection, semen analysis.	246	D09(RS2), J10(RS2), J11(RS2), D13(RS3), J00, D10, J15
80. Enlist four important parameters of semen examination along with their normal range.	246	J14

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	HRMNPR	
81. Microscopic examination of semen.	246	D10(RS2), D07
82. Sperm count.	246	D15(RS3)
83. Abnormalities in sperm morphology.	247	J09(RS2), D16
84. CSF findings in pyogenic meningitis.	250	D08(RS2), D09(RS2), J11(RS2), J12(RS2), D13(RS3), D99, J00, J08, D16
85. CSF findings in viral meningitis.	250	D02
86. CSF findings (cytology) in tuberculous meningitis.	250	D07(RS2), J10(RS2), D12(RS3), D14(RS3), J15(RS3), J02, D03, J04, A07, J09, D11, D12, D14
87. Albuminometer.	267	J05
88. Westergren's tube.	267	D07
89. Wintrobe's (packed cell volume) tube and its function.	267	D15(RS3), D99, D03
90. Vacutainer.	267	J14

2

**Microbiology  
and  
Parasitology**

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2. Apurba Sankar Sastry, Sandhya Bhat K (**ASTR**): Essentials of Medical Microbiology (1st Edition), Jaypee Brothers Medical Publishers (P) Ltd., New Delhi; Rs. 695/-
3. Sougata Ghosh (**PNKR**): Paniker's Textbook of Medical Parasitology (7th Edition), Jaypee Brothers Medical Publishers (P) Ltd., New Delhi; Rs. 425/-
4. CP Baveja, V Baveja (**BVJP**): Medical Parasitology (3rd Edition), Arya Publishing Company, Kala Amb; Rs. 280/-



**COURSE CONTENTS****THEORY****I. Introduction***Must Know*

- Morbidity and mortality data of infectious diseases prevalent in the country with reference to the National Health Programs and in the local geographic area.

*Desirable to Know*

- Significant milestones in the history of microbiology.

**II. General Microbiology***Must Know*

- Definitions: Infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, zoonosis, epizootic, attack rate.
- Normal flora of the human body.
- Routes of infection and spread; endogenous and exogenous infections; source and reservoir of infections.
- Bacterial cell: Morphology limited to recognizing bacteria in clinical samples—shape, motility and arrangement. Structures which are virulence associated. Physiology—essentials of bacterial growth requirements.
- Sterilization, disinfections and universal precautions in relation to patient care and disease prevention. Definition of asepsis, sterilization, disinfection.
- Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance, spectrum of activity.
- Bacterial genetics.

**III. Immunology***Must Know*

- Basic principles of immunity. Immunobiology—lymphoid organs and tissues. Antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.
- Humoral immunity and its role in immunity.
- Cell-mediated immunity and its role in immunity.
- Immunology of hypersensitivity.
- Measuring immune functions.
- Immunological basis of the autoimmune phenomenon.
- Immunodeficiency with relevance to opportunistic infections.
- Basic principles of transplantation immunity.
- Basic principles of tumor immunity.

**IV. Systemic Bacteriology**

To be considered under the following headings:

- Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretation of laboratory reports, rapid bedside diagnosis where feasible, list of antimicrobial agents and control measures with special relevance to the National Control and Eradication Programs, in respect of:

*Must Know*

- Staphylococci
- Streptococci and pneumococci
- *Neisseriae*
- *Corynebacterium diphtheriae*
- Mycobacteria: Tuberculosis, *M. leprae*, atypical mycobacteria.
- Enterobacteriaceae
- Parvobacteria: *Haemophilus*, *Bordetella*, *Brucella*, *Pasteurella*, *Gardnerella*
- Vibrios: *V. cholerae* and other medically important vibrios
- Campylobacters and Helicobacters
- *Pseudomonas*
- *Bacillus anthracis*
- Sporing and nonsporing anaerobes: Clostridia, bacterioides and fusobacteria
- Chlamydiae: *Mycoplasma*
- Actinomycetes: Actinomycetes and Nocardia
- Spirochetes
- Rickettsiae.

*Desirable to Know*

- *Listeria monocytogenes*.

**V. General Virology***Must Know*

- General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis of viral diseases. List of commonly used antiviral agents. Bacteriophage with action to virulence mechanism and epidemiology.

*Desirable to Know*

- Replication and genetics.

**VI. Systemic Virology***Must Know*

- Herpes viruses: List of viruses included, lesions produced, pathogenesis and latency principles and laboratory diagnosis.
- Arboviruses: List of arboviruses prevalent in India, general properties, mode of transmission, disease syndromes produced, common diagnostic test, prevention of spread.

- Picornaviruses: Common infections produced, classification and general properties, pathogenesis of poliomyelitis, immunoprophylaxis of poliomyelitis.
- Myxoviruses: General properties, classification according to diseases produced, antigenic variations in influenza virus with relevance to vaccine efficacy; measles, mumps and rubella; important features and prophylaxis.
- Rabies virus: General properties, antirabies vaccine, antemortem diagnosis in rabies.
- Hepatitis virus: List of viruses, pathogenesis, mode of infection, list of diagnostic tests and their interpretation, methods of prevention and control.
- Human immunodeficiency virus: Structure with relevance to laboratory diagnosis and type of infection, laboratory tests and their interpretation, universal precautions, specific precautions, recent trends in diagnosis and prophylaxis.
- Rotavirus: Laboratory diagnosis.
- Adenovirus: Infections caused and laboratory diagnosis.

*Desirable to Know*

- Slow virus infection
- Poxviruses
- Oncogenic viruses.

#### VII. Mycology

*Must Know*

General properties of fungi. Classification based on disease: Superficial subcutaneous, deep mycoses; opportunistic infections including mycotoxins, systemic mycoses. General principles of fungal diagnosis, rapid diagnosis, method of collection of samples, antifungal agents.

#### VIII. Parasitology

*Must Know*

- Protozoans
  - Intestinal
  - Genital
  - Protozoans in blood
  - Opportunistic protozoans.
- Helminths
  - Cestodes
    - Taenia
    - Echinococcus
    - Hymenolepis.
  - Nematodes
    - Intestinal
    - Tissue.
- Medical entomology with reference to vectors.

*Desirable to Know*

- Trematodes of medical importance.

**IX. Clinical/Applied Microbiology***Must Know*

- Streptococcal infections: Rheumatic fever and rheumatic heart disease
- Meningitis
- Tuberculosis
- Enteric fever
- Dysentery
- Diarrheal diseases
- Pyrexia of unknown origin
- Eye infections
- Leprosy
- Sexually transmitted diseases
- Poliomyelitis
- Hepatitis
- Acute respiratory infections
- Central nervous system infections
- Urinary tract infections
- Pelvic inflammatory disease
- Wound infection
- Opportunistic infections
- HIV infection
- Malaria
- Filariasis
- Zoonotic diseases.

*Desirable to Know*

- Bone and joint infections
- Food poisoning
- Exanthematous conditions
- Organism used in bioterrorism.

**X. Biomedical Waste: Types, Potential Risks and their Safe Management****SKILLS***Must Know*

- Do stool examination for ova and cysts and hanging drop for *Vibrio cholerae*.
- Do and examine a wet film of vaginal smear for trichomonas and fungus.
- Perform and interpret Gram's stain, Albert's stain, and Ziehl-Neelsen or modified Ziehl-Neelsen stain.
- Perform skin scrapings and do a potassium hydroxide (KOH) preparation for fungal infections.
- Do cell counts and Gram stain of cerebrospinal fluid (CSF) and other body fluids.
- Interpret blood smear for parasites like malaria and filarial.
- Interpret antimicrobial sensitivity reports.
- Interpret serological tests, such as venereal disease research laboratory (VDRL), antistreptolysin O (ASLO), Widal, human immunodeficiency virus (HIV), rheumatoid factor, hepatitis and TORCH (toxoplasmosis,

- rubella, cytomegalovirus and herpes) infections, *Treponema pallidum*, hemagglutination, hemagglutination in virology, hemagglutination inhibition.
- Be able to collect and transport following clinical samples for microbiological tests: Blood, pus, urine, CSF, body fluids, stool, sputum, throat swabs and serum.
  - Adopt universal precautions for self-protection against HIV and hepatitis.

### **PRACTICAL**

#### **PRACTICAL EXERCISES**

The students would perform the following procedures:

- Gram stain
- Ziehl-Neelsen stain
- Modified Ziehl-Neelsen stain
- Albert stain
- Hanging drop
- Wet mount for stool examination
- Iodine mount for stool examination
- Lactophenol cotton blue mount for fungus examination
- Simple stain.

##### **I. Microscope**

- Principles and use of compound microscope in detail
  - Dark ground microscope
  - Fluorescent microscope
  - Phase-contrast microscope
  - Electron microscope.

##### **II. Sterilization**

- Principles, uses and demonstration of common sterilization equipments, namely, autoclave, hot air oven, serum inspissator, Arnold sterilizer, filters.

##### **III. Culture Media**

- Classification of culture media, principles, main ingredients and uses of common culture media, namely:
  - Peptone water
  - Nutrient broth
  - Nutrient agar
  - Blood agar
  - Chocolate agar
  - MacConkey
  - Wilson Blair
  - Thiosulfate citrate bile salts sucrose (TCBS)
  - Lowenstein-Jensen (LJ)
  - Potassium tellurite
  - Dorset egg
  - Loeffler's serum slope
  - Reinforced clostridial medium (RCM)

- Milk agar
- Selenite F broth
- Blood culture broth.
- Media for biochemical reaction
  - Sugar fermentation
  - Urease
  - Citrate
  - Indole.
- Media with growth of common organisms for demonstration of
  - *Staphylococci*
  - *C. diphtheriae*
  - *Mycobacterium tuberculosis*
  - *Salmonella* on WB
  - *Vibrio* on TCBS, MacConkey with lactose fermenting (LF) and non-lactose fermenting (NLF)
  - Milk agar with staphylococci
  - *Proteus* on nutrient agar.
- Antibiotic sensitivity
  - Methods and principles.

#### IV. Staining and Hanging Drop

- Demonstration of motility by hanging drop method
- Gram stain
- Ziehl-Neelsen (ZN) stain.

#### V. Parasitology

- Examination of feces for helminthic eggs (Roundworm, hookworm, whipworm, *H. nana*).

#### VI. Applied Bacteriology

- Demonstration of specimen collection
- Growth on appropriate media
- Biochemical reaction
- Appropriate special tests for the laboratory diagnosis of common infectious diseases, namely;
  - Pyogenic infection
  - Enteric fever
  - Bacillary dysentery
  - Cholera
  - Urinary tract infection (UTI)
  - Infantile diarrhea
  - Tuberculosis.

#### VII. Demonstration of Serological Test

- Widal test
- Venereal disease research laboratory (VDRL)
- Enzyme-linked immunosorbent assay (ELISA).

#### VIII. Demonstration of Fungus

- Growth and slide mounts of common fungi
  - *Candida*
  - *Aspergillus*

- *Mucor*
- *Rhizopus*
- *Penicillium*
- Dermalophytes (one or two).

#### IX. Uses of Laboratory Animals

- Rabbit
- Guinea pig
- Mouse.

#### X. Demonstration of Slides and Instruments

#### XI. Media and Specimens (Demonstration)

The following procedures are only for demonstration. Students will interpret results, but need not perform the procedure of tests. Serological demonstration of:

- Widal
- Venereal disease research laboratory
- Hemagglutination
- Hemagglutination inhibition
- Complement fixation test
- Viral hemagglutination
- Enzyme-linked immunosorbent assay.

#### XII. Integrated Teaching

- Enteric fever
- Cholera
- Human immunodeficiency virus and acquired immunodeficiency syndrome
- Tuberculosis
- Hospital infection and control measures
- Malaria.

The following materials are to be procured for the conduct of practical classes:

##### I. Slides

- |                                   |                          |
|-----------------------------------|--------------------------|
| • Staphylococci                   | • Streptococci           |
| • Gonococci                       | • <i>M. tuberculosis</i> |
| • <i>M. leprae</i>                | • <i>C. diphtheriae</i>  |
| • <i>T. pallidum</i>              | • <i>C. tetani</i>       |
| • Negative staining (Pneumococci) | • Malarial parasite      |
| • Microfilaria                    | • Cyclops                |
| • Hydatid cyst wall               | • Negri bodies           |
| • Molluscum contagiosum           | • Rhinosporidiosis       |
| • <i>Candida</i>                  | • <i>Cryptococcus</i>    |
| • <i>Aspergillus</i>              | • <i>Penicillium</i>     |
| • <i>Mucor/Rhizopus</i>           | • Pneumococci—Gram stain |
| • <i>Y. pestis</i>                | • Mycetoma—H and E stain |
| • Cestode—segment.                |                          |

##### II. Media

##### A. Without growth

- |                 |                  |
|-----------------|------------------|
| • Peptone water | • Nutrient broth |
|-----------------|------------------|



- Nutrient agar
- Chocolate agar
- Wilson and Blair medium
- Lowenstein-Jensen medium
- Milk agar
- Blood culture broth
- Dorset egg medium
- Loeffler's serum slope.
- Blood agar
- MacConkey agar
- Thiosulfate citrate bile salts sucrose
- Robertson cooked meat medium
- Selenite F broth

#### B. With growth

- *Staphylococcus: Albus* and *aureus* on nutrient agar
- *Staphylococcus: Albus* and *aureus* on milk agar
- Potassium tellurite medium with *C. diphtheriae*
- LJ with *M. tuberculosis*
- MacConkey with LF and NLF
- Wilson and Blair with growth
- TCBS with growth
- *Proteus*: On nutrient agar or on blood agar
- Sugar fermentation: Indole—negative and positive
- Urease: Negative and positive
- Citrate: Negative and positive
- Sabouraud's glucose agar with *Candida/Aspergillus*
- Sabouraud's glucose agar with any dermatophyte.

#### III. List of Instruments

- Seitz filter
- Candle filter
- McIntosh Fildes's jar
- VDRL slide
- Widal rack with tubes
- Sterile swab
- Tuberculin syringe
- Microtiter plate
- Inoculation loop
- Pasteur pipette

#### IV. List of Specimens

- Roundworm
- Hookworm
- Whipworm
- Tapeworm
- Hydatid cyst
- Embryonated egg
- Suckling mouse
- Guinea worm

#### V. Experimental Animals

- Rabbit
- Guinea pig
- Mouse.

**UNIVERSITY EXAMINATION PATTERN****Eligibility for Writing the University Examination**

The candidate should have at least 35% aggregate in the two of the three internals conducted by the college and should also have minimum 75% attendance in Theory and Practical classes conducted.

**Criteria for Passing the University Examination**

The candidate should secure minimum 50% in the university theory examination (University theory + Viva voce) and the university practical examinations separately. Internal assessment marks would not be considered for passing criteria, however, they would be added to final marks to determine class of passing.

**Distribution of Marks**

	Internal Assessment		University Examination	
	Maximum marks	Minimum marks to qualify	Maximum marks	Minimum marks to pass
Theory examination	40 marks	14 marks	200 marks	120 marks
Viva voce	—	—	40 marks	
Practical examination	40 marks	14 marks	80 marks	40 marks

**Theory Examination**

There shall be two theory paper carrying 100 marks each. The pattern of questions would be of three types.

2 Long Essay Questions	2 × 10 marks	20 marks
10 Short Essay Questions	10 × 5 marks	50 marks
10 Short Answer Questions	10 × 3 marks	30 marks
<b>Total</b>		<b>100 marks</b>

*Distribution of Chapters in Paper I and II for University Examination with Weightage of Marks*

Paper I		Paper II	
Topics	Marks	Topics	Marks
General Bacteriology	20	Virology	40
Immunology	30	Parasitology	40
Systemic Bacteriology	50	Mycology	10
		Applied Microbiology	10

Topics assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of topics is inevitable and students are advised to be prepared to answer overlapping topics.

**Practical Examination**

Practical examination is of 80 marks each.

*Distribution of Practicals for University Examination with Marks*

Exercise	Marks		
Spotters	10 marks	4 Slides	4 marks
		3 Media	3 marks
		1 Instrument	1 marks
		1 Parasitology Specimen	1 marks
		1 Animal	1 marks
Gram's Stain	15 marks		
Special (ZN or Albert Stain)	10 marks		
Parasitology (Stool Examination)	15 marks	Clinical microbiology can be kept together as charts or culture and slides or biochemical tests	
Clinical Bacteriology	10 marks		
Clinical Virology (Charts)	10 marks		
Clinical Mycology (Slide and Culture)	10 marks		

**Viva Voce Examination**

The viva voce examination shall carry 40 marks and all the examiners will conduct the viva examination separately for each candidate.

*Distribution of Marks for Viva Voce Examination*

Topic	Marks
General Bacteriology and Immunology	10 marks
Systemic Bacteriology	10 marks
Virology and Mycology	10 marks
Parasitology	10 marks

## Question Bank

## MICROBIOLOGY

BVJM    ASTR

## Section I: General Microbiology

## CHAPTER 1

## HISTORICAL INTRODUCTION

## Short Essays

- |                                                         |   |   |                                                                                |
|---------------------------------------------------------|---|---|--------------------------------------------------------------------------------|
| 1. Louis Pasteur.                                       | 4 | 3 | J07(RS2),<br>D07(RS2),<br>J09(RS2),<br>J12(RS2),<br>J16(RS3), D09,<br>D11, D16 |
| 2. Robert Koch (contribution to medicine/microbiology). | 4 | 4 | D06(RS2), D08,<br>D10, J12                                                     |

## Short Answers

- |                                                              |   |   |                                                                |
|--------------------------------------------------------------|---|---|----------------------------------------------------------------|
| 1. Edward Jenner.                                            | — | 3 | D10(RS2)                                                       |
| 2. Louis Pasteur (contributions/four important discoveries). | 4 | 3 | D08(RS2),<br>D11(RS2), D99,<br>D01, J03, J06,<br>J07, J11, J16 |
| 3. Robert Koch (contributions to microbiology).              | 4 | 4 | J08(RS2),<br>J10(RS2),<br>D15(RS3), J14                        |
| 4. Enumerate Koch's postulates.                              | 5 | 4 | D12(RS3)                                                       |
| 5. What is Koch's phenomenon?                                | 5 | 4 | J09                                                            |

## CHAPTER 2

## MICROSCOPY AND MORPHOLOGY OF BACTERIA

## Long Essays

- |                                                                                                                                    |        |        |               |
|------------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------------|
| 1. Describe the morphology of a bacterial cell with the help of a neat diagram and mention the functions of various appendages.    | 13     | 17     | D09(RS2), J00 |
| 2. Draw and label the bacterial cell. Describe the structure, functions, antigenicity, distribution and demonstration of flagella. | 14, 17 | 18, 22 | J13(RS3), D10 |

## Short Essays

- |                                              |   |   |          |
|----------------------------------------------|---|---|----------|
| 1. Prokaryotes and eukaryotes (differences). | 9 | 9 | J00, D01 |
|----------------------------------------------|---|---|----------|

Contd. ...

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	BVJM	ASTR	
2. Dark ground microscopy.	10	10	D01, J10, J11
3. Fluorescent microscope (principle and applications).	10	11	J11(RS2), J15
4. Gram stain.	11	14	D07(RS2)
5. Ziehl-Neelsen stain/acid-fast staining.	12	16	D12, J16
6. Bacterial cell wall (structure and functions).	13	17	D12(RS3), J09, J15
7. Gram-negative cell wall.	14	19	J09(RS2), J10(RS2)
8. Bacterial capsule.	16	21	J01, D05, D07, J13, D16
9. Bacterial flagella.	17	22	J07(RS2), J11(RS2), D13(RS3), D06, J07, D11
10. Bacterial spore.	18	24	D08(RS2), J10(RS2), D14(RS3), J15(RS3), J16(RS3), D16(RS3), J04, J08

**Short Answers**

1. Dark ground microscopy—principle and uses.	10	10	J16(RS3), J05
2. Electron microscope (applications).	10	12	J02, D07
3. Negative staining.	11	14	D03, D10, D16
4. Gram's staining and its application.	11	14	J07
5. Ziehl-Neelsen stain—principle.	12	16	J08
6. Albert's staining.	12	16	J14
7. Name four gram-positive cocci found in chains.	13	17	D06
8. Bacterial cell wall—importance.	13	17	D08
9. Mention four differences between gram-positive and gram-negative cell wall.	14	18	D16
10. Cell wall of gram-positive bacteria.	14	18	D07(RS2), D02
11. Spheroplast.	15	24	J00, D09
12. Protoplast.	15	24	J01, D04
13. Spheroplast and protoplast.	15	24	D02
14. Gram-negative cell wall—characters, diagram.	15	18	D06(RS2), D16(RS3) J02

Contd... —

Contd...

	BVJM	ASTR	
15. Bacterial inclusion bodies.	15	21	D10
16. Define pleomorphism with suitable example.	15	24	D09
17. Involution forms.	15	24	D01
18. L forms of bacteria.	15	24	J03, D05, D06, J10, D11
19. Bacterial capsule (demonstration/capsular staining).	16	21	D06(RS2), J07(RS2), J14(RS3), J05, J08, J09
20. Bacterial flagella—labeled diagram/ four methods of demonstrate/flagellar arrangement.	17	22	D09, J12, J16
21. Motile bacteria—two examples, three methods to demonstrate motility.	17	23	D11(RS2), D03, D08
22. Fimbriae.	18	23	J10(RS2), D00, D01
23. Bacterial spore (draw and label/ diagram showing distribution).	18	24	D07(RS2), J12(RS2), D07, D08, D10
24. Name four sporulating bacteria.	18	25	J07

**CHAPTER 3****GROWTH, NUTRITION AND METABOLISM OF BACTERIA****Short Essays**

1. Bacterial growth curve.	23	26	D06(RS2), D14(RS3), D03, D05, J09, J13, J14, D14
2. Describe the environmental factors affecting growth of bacteria (any five).	24	27	D12

**Short Answers**

1. Generation time.	23	26	J16
2. Bacterial growth curve (stages).	23	26	D02
3. Lag phase in bacterial growth curve.	23	26	J04, D08
4. Methods to enumerate viable count of bacteria.	23	26	D13(RS3)
5. Events in log phase of bacterial growth curve.	24	27	D12(RS3)
6. Enumerate on stationary phase in bacterial growth curve.	24	27	J11
7. Thermophilic bacteria.	25	28	J04

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BVJM ASTR

**CHAPTER 4****STERILIZATION AND DISINFECTION****Long Essays**

- |                                                                                                                                                                                                  |               |        |                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|------------------------------------|
| 1. Define sterilization and list the methods of sterilization. Discuss their application in medical practice.                                                                                    | 28            | 30     | D00                                |
| 2. Define and classify sterilization. Discuss dry heat sterilization.                                                                                                                            | 28, 29        | 30, 32 | D14(RS3)                           |
| 3. Classify sterilization. Explain in details the construction and working of hot air oven. Add a comment on merits and demerits of hot air oven and mention sterilization controls used for it. | 28, 29        | 31, 32 | D09                                |
| 4. Define and classify sterilization. Describe the methods of sterilization by moist heat (steam).                                                                                               | 28, 30        | 30, 32 | J07(RS2),<br>D13(RS3),<br>J14(RS3) |
| 5. Define disinfection and sterilization. Enumerate commonly used disinfectants in healthcare setup. Describe where and how are these used.                                                      | 28, 33        | 30, 36 | J16(RS3)                           |
| 6. Define disinfectants and antiseptics. Discuss disinfectants, their mode of action and their uses in the hospital setting. Add a note on evaluation of disinfectants.                          | 28, 33,<br>37 | 36, 40 | J03                                |

**Short Essays**

- |                                                                                                |    |    |                                                                                     |
|------------------------------------------------------------------------------------------------|----|----|-------------------------------------------------------------------------------------|
| 1. Hot air oven.                                                                               | 29 | 32 | D11(RS2),<br>J13(RS3), J06,<br>J14, J16                                             |
| 2. Sterilization by moist heat.                                                                | 30 | 32 | D16(RS3), D11                                                                       |
| 3. Moist heat sterilization below 100°C.                                                       | 30 | 32 | D14                                                                                 |
| 4. Pasteurization of milk.                                                                     | 30 | 32 | J01, J04, J11,<br>D12                                                               |
| 5. Intermittent sterilization (tyndallization).                                                | 30 | 33 | J05, J10, J13                                                                       |
| 6. Autoclave (principles, functions, commonly used temperature, pressure and quality control). | 31 | 33 | D07(RS2),<br>J08(RS2),<br>D08(RS2), D99,<br>D02, D03, D04,<br>D08, J12, D13,<br>D16 |

Contd... —



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	BVJM	ASTR	
7. Bacterial filters.	32	35	J10(RS2), D15(RS3), J07, J16
8. Seitz filter.	32	35	J00
9. Sterilization by radiation.	33	36	J12(RS2), D10
10. Chemical disinfectants (commonly used/used in the hospital).	33	36	J08(RS2), D12(RS3), J15(RS3), J07, D07, J09
11. Gaseous disinfectants.	36	39	D10(RS2)
<b>Short Answers</b>			
1. Incineration.	29	32	J01, D04, D11, J15
2. Pasteurization.	30	32	D06, J14
3. Tyndallization.	30	33	J04, J06
4. Autoclave—principle/applications/ articles sterilized/methods for testing the efficacy.	31	33	J02, J10, J11
5. Bacterial filters—four types.	32	35	D07(RS2), D08(RS2)
6. Nonionizing radiations (cold sterilization)—uses.	33	36	D03, J07, D07, D11
7. Chemical disinfectant (two exmples).	33	36	D06(RS2), D05
8. Mention two chemical sporicidal agents.	33	40	J15
9. Gaseous sterilization.	36	39	D08(RS2)
10. Gaseous disinfectants (name two).	36	39	D03, J05
11. Fumigation.	36	39	J00, D00
12. Operation theater sterilization— procedure.	36	39	J08(RS2)
13. Sterilization controls (biological sterilization control for autoclave and hot air oven).	30, 32	40	J09(RS2), J11
14. Tests for disinfectants.	37	40	D10, D16
15. Reidel-Walker test.	37	40	J12
16. Kelsey-Sykes test.	37	41	D00

**CHAPTER 5****CULTURE MEDIA****Long Essay**

- |                                                                               |        |    |     |
|-------------------------------------------------------------------------------|--------|----|-----|
| 1. Classify culture media and describe in<br>detail anerobic culture methods. | 40, 47 | 44 | J04 |
|-------------------------------------------------------------------------------|--------|----|-----|

Contd...

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	BVJM	ASTR	
<b>Short Essays</b>			
1. Culture media with examples (types of bacteriological media).	40	44	J09(RS2), J11(RS2), D13
2. Enriched media.	41	44	J12
3. Enrichment media.	42	45	D10(RS2)
4. Selective media.	42	45	J03
5. Differential media.	42	46	J08
<b>Short Answers</b>			
1. Milk agar media.	—	—	J00, D00
2. Thiosulfate citrate bile salt sucrose medium (TCBS medium).	—	334	J05, D12, D16
3. Sabourauds dextrose agar (SDA) media—constituents and uses.	—	551	J06, J08, D14, J16
4. Agar—four important properties useful as an ingredient of culture media.	40	43	D09
5. Enriched medium.	41	44	J06, D16
6. Selective media—four examples and uses.	42	45	D12(RS3), D99, D02, J03, D07, D14
7. Enrichment media.	42	45	D06(RS2), J07(RS2), D05
8. Transport media.	42	45	D07(RS2), J15(RS3), D03, D05, D08, J15
9. Differential media with an example.	42	46	D06, J12
10. Blood agar—constituents, preparations and uses.	44	44	J16(RS3)
11. Loeffler's serum slope.	44	45	J06
12. Chocolate agar—uses.	44	45	J01
<b>CHAPTER 6</b>			
<b>CULTURE METHODS</b>			
<b>Short Essays</b>			
1. Methods of anaerobic cultivation (anaerobiosis).	47	50	D06(RS2), D09(RS2), D11(RS2), J12(RS2), J02, D07, J08, D09
2. Methods of isolation of bacteria.	49	52	J11
<b>Short Answers</b>			
1. Uses of Lawn culture.	47	47	D16
2. Anaerobic culture methods.	47	50	J08(RS2)

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	BVJM	ASTR	
3. McIntosh and Filde's anaerobic jar (neatly labeled diagram).	48	50	J01, D04, J11, D11
4. Anerobic culture media.	49	46	D14(RS3), D15(RS3), J00, J02
5. Robertson cooked meat medium.	49	46	J10

**CHAPTER 7****IDENTIFICATION OF BACTERIA****Short Answers**

1. Indole test.	53	56	D11(RS2), J00, D01, J03
2. Urease test.	53	56	J01, D04, D06, D16
3. Name four/two lactose fermenters.	53	57	J15
4. Oxidase test (two oxidase positive bacteria).	54	55	D01, D02, J04, J05, J06, D07, D08, J14, J15
5. Catalase test (two catalase positive bacteria).	54	55	J07(RS2), D06, D09
6. Name.	54	55	
7. Citrate utilization tests.	54	56	D10
8. Methyl red test—principle, two bacteria giving positive methyl red test.	55	58	J11
9. IMViC reaction.	56	—	J16
10. Triple sugar iron (TSI) media.	56	56	D01, J02

**CHAPTER 8****BACTERIAL TAXONOMY**

None

**CHAPTER 9****BACTERIAL GENETICS****Long Essays**

1. What is genetic variation? Describe the various methods of gene transfer and its role in drug resistance in bacteria.	63, 66	68, 70	D07
2. Give an account of various mechanisms of transfer of genetic information between bacteria.	66	70	D08

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	BVJM	ASTR	
3. Enumerate methods of gene transfer in bacteria. Describe conjugation and write the significance of conjugation.	66, 68	70, 73	J15(RS3)
4. Describe how bacteria acquire resistance to antibiotics with examples.	70	78	J08(RS2)
<b>Short Essays</b>			
1. Extrachromosomal genetic elements.	63	67	J12
2. Plasmids (types).	63	67	D09(RS2), J00, D00, D01, D12, J16
3. Mutation—definition, types and significance.	64	68	D06(RS2), J03, D09
4. Mutagens.	65	68	D13
5. Describe methods of transfer of genetic material in bacteria.	66	70	J16(RS3)
6. Transduction.	67	71	D07(RS2), D10(RS2), J01, J08, D10, J11, J13
7. Bacterial conjugation and its clinical significance.	68	73	D08(RS2), J10(RS2), D11(RS2), J13(RS3), D15(RS3), D02, D04, D08, D16
8. Resistance transfer factor (R factor).	69	74	J10
9. Transposon.	70	75	J12(RS2), J02, J15
10. Drug resistance in bacteria—mechanisms.	70	78	J06, D13, J14, D14
11. Mutation and drug resistance.	70	81	J12(RS2), D13(RS3), J09
12. Transferable drug resistance.	70	82	J14(RS3), D05
13. Genetic engineering—principles and application in medicine.	71	76	J09(RS2), D99, J04
<b>Short Answers</b>			
1. Plasmids.	63	67	J15
2. Phenotypic variations.	64	68	J02
3. Genotypic variation.	64	68	D02
4. Enumerate the methods of genetic transfers in bacteria.	66	70	D00, J08, J12
5. Bacteriocin.	69	73	D13, J15

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	BVJM	ASTR	
6. Role of plasmids in drug resistance.	69	74	D16
7. Resistance transfer factor.	69	74	D11
8. Transposons.	70	75	J16
9. Transferable drug resistance.	70	82	D16(RS3)
10. Restriction endonucleases.	71	76	J09(RS2)

**CHAPTER 10****MICROBIAL PATHOGENICITY****Short Essays**

1. Carriers—types with examples.	78	88	D04
2. Zoonotic infections.	78	89	D12(RS3)
3. Modes of transmission of infection.	79	89	J12(RS2)
4. Determinants of virulence in bacteria (factors predisposing to microbial pathogenicity).	80	90	D09(RS2), J12(RS2), J14(RS3), D15(RS3), D99, J08
5. Bacterial toxins.	81	91	J05
6. Endotoxins.	81	91	D06, J10, D11
7. Exotoxins.	81	92	D03
8. Compare exotoxins and endotoxins.	81	93	J08(RS2), J11(RS2)

**Short Answers**

1. Immunomodulators.	—	—	D99
2. Carrier.	78	88	J14(RS3)
3. Healthy carrier.	78	89	D05
4. Zoonotic diseases—list four/two bacterial.	78	89	J00, D03, D05, J06, D06
5. Various modes of transmission of infections and examples.	79	89	J13(RS3), J15(RS3)
6. Biological vector—define, give two examples.	79	90	J16(RS3), J12
7. What is extrinsic incubation period?	79	90	J03, D06, J08
8. Give two examples for virulence factors in bacteria.	80	90	D05
9. Endotoxin—four biological activities.	81	91	J12(RS2), J08, D08
10. Exotoxin.	81	92	J09, D09
11. Compare and contrast exotoxins and endotoxins.	81	93	D08(RS2), D10, J12

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BVJM ASTR

## Section II: Immunology

## CHAPTER 11

## IMMUNITY

## Long Essays

- |                                                                                                                                                                           |        |         |                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|-----------------------------------|
| 1. Define and classify immunity. Briefly explain innate immunity. What is innate immunity? Discuss its mechanism. Briefly describe the cells involved in innate immunity. | 87     | 97      | J10(RS2), D15(RS3), D01, J05, J09 |
| 2. Define and classify immunity. Describe acquired immunity.                                                                                                              | 87, 89 | 97, 101 | D13(RS3)                          |

## Short Essays

- |                                  |    |     |                                        |
|----------------------------------|----|-----|----------------------------------------|
| 1. Innate immunity (mechanisms). | 87 | 97  | J14(RS3), D16(RS3), D00, D07, J15      |
| 2. Active immunity.              | 89 | 101 | J00, J08, D10                          |
| 3. Passive immunity.             | 90 | 102 | J14(RS3), D14(RS3), J16(RS3), J01, J03 |

## Short Answers

- |                                                                 |    |     |                    |
|-----------------------------------------------------------------|----|-----|--------------------|
| 1. Classify immunity.                                           | —  | 97  | D14                |
| 2. Four differences between active and passive immunity.        | 90 | 103 | J11, J13           |
| 3. Enumerate features of passive immunity.                      | 90 | 102 | J15(RS3)           |
| 4. Natural passive immunity.                                    | 90 | 102 | D16                |
| 5. Passive acquired immunity.                                   | 90 | 102 | J11(RS2)           |
| 6. Artificial passive immunity.                                 | 90 | 102 | D09(RS2), J07      |
| 7. Natural acquired immunity.                                   | 90 | 101 | J13(RS3)           |
| 8. Artificial active immunity.                                  | 90 | 101 | D11(RS2)           |
| 9. Name different type of vaccines. Give examples of each type. | 90 | 202 | D10                |
| 10. Mention four live attenuated vaccines.                      | 90 | 203 | J00, D06           |
| 11. Name four killed vaccines.                                  | 90 | 203 | J01, J02, D02, D04 |
| 12. Four bacterial vaccines.                                    | 90 | 203 | D10                |
| 13. Killed viral vaccines.                                      | 90 | 203 | J11(RS2)           |
| 14. Local immunity.                                             | 91 | 103 | J15                |

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	BVJM	ASTR	
15. Herd immunity.	91	103	D02, D03, J14, J16

**CHAPTER 12****ANTIGENS****Short Essays**

- |             |    |     |          |
|-------------|----|-----|----------|
| 1. Antigen. | 93 | 105 | J12      |
| 2. Haptens. | 93 | 105 | J09, J10 |

**Short Answers**

- |                                                                       |    |     |                                                      |
|-----------------------------------------------------------------------|----|-----|------------------------------------------------------|
| 1. Haptens.                                                           | 93 | 105 | J13(RS3),<br>D16(RS3), D01,<br>J03, J13, D14,<br>D16 |
| 2. What are the main attributes that make a substance a good antigen? | 93 | 106 | D99                                                  |
| 3. Properties of antigen.                                             | 93 | 106 | D14(RS3)                                             |
| 4. Define heterophile antigen. Give two examples.                     | 95 | 106 | D11(RS2), D02                                        |

**CHAPTER 13****ANTIBODIES—IMMUNOGLOBULINS****Long Essays**

- |                                                                                                                                                        |         |               |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------|
| 1. What are immunoglobulins? Define and classify immunoglobulins. Give an account of structure, classification and function of immunoglobulin G (IgG). | 97, 99  | 110, 112      | J11           |
| 2. Define antibody. Describe basic structure of immunoglobulin molecule. Write in details about different types of antibodies and their functions.     | 97, 99  | 110, 112      | J14(RS3), D13 |
| 3. Describe the structure and functions of immunoglobulin G. Add a note on monoclonal antibodies.                                                      | 99, 138 | 110, 112, 116 | D12(RS3)      |

**Short Essays**

- |                                                      |     |     |                                                 |
|------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Describe the structure of immunoglobulin.         | 97  | 110 | D00, J04                                        |
| 2. Structure of IgG.                                 | 97  | 110 | D13(RS3)                                        |
| 3. Immunoglobulin G (IgG).                           | 99  | 112 | J08                                             |
| 4. Structure and function of immunoglobulin A (IgA). | 100 | 114 | J16(RS3),<br>D09(RS2),<br>D14(RS3),<br>J15(RS3) |

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	BVJM	ASTR	
5. Immunoglobulin M (IgM)—structure, functions, and properties.	101	113	D08(RS2), J13(RS3), J05, J09, J14
6. Immunoglobulin E (IgE) antibody	102	114	J06
<b>Short Answers</b>			
1. Enumerate immunoglobulins.	97	112	D00
2. IgG—structure (diagrammatic representation)/four properties/ functions.	99	112	D07(RS2), D11(RS2), J00, D01, D02, D07, D11, D14
3. IgA (secretory IgA)—structure (diagrammatic representation) and function.	100	114	J07(RS2), D10(RS2), J02, D03, D12
4. IgM—diagrammatic representation.	101	113	D06(RS2), J11(RS2), J01, D04, J15
5. IgE antibody—structure and function.	102	114	J13

**CHAPTER 14****ANTIGEN-ANTIBODY REACTIONS****Long Essays**

1. Enumerate antigen-antibody reactions in vitro. Define precipitation. Describe the principle and applications of precipitations reactions.	106	123	J07, J12, D12, D16
2. Enumerate antigens-antibody reactions. Describe the principle, methodology and clinical applications of agglutination reactions with suitable examples.	110	123, 125	D06(RS2), D02, J06, D06, J10, D14

**Short Essays**

1. Precipitation reactions (in diagnosis of infections).	106	123	D06(RS2), J06, D09
2. Precipitation in gel reactions with examples.	107	123	D09(RS2), D01
3. Agglutination tests and its applications.	110	125	J08(RS2), J13(RS3), D15(RS3), J02, D08
4. Coombs test.	110	127	D01
5. Heterophile agglutination reaction.	111	126	D07(RS2), J05

Contd... —



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	BVJM	ASTR	
6. Passive agglutination test.	111	126	D10(RS2)
7. Hemagglutination test—types with examples.	111	127	D99
8. Weil-Felix test (reaction).	111	393	J16(RS3), J01, D05, J09
9. Immunofluorescence—its principle and application in diagnostic microbiology.	114	133	J09(RS2), J10(RS2), J00, D03, J05, D06, J14
10. Radioimmunoassays.	115	134	D07
11. Enzyme-linked immunosorbent assay (ELISA) test—its principle and applications.	116	129	D08(RS2), J14(RS3), J01, D04

**Short Answers**

1. Define sensitivity and specificity.	—	123	D99
2. Mention four characteristics of antigen-antibody reactions.	105	121	D09
3. Prozone phenomenon (zone phenomenon).	106	122	J09(RS2), D12(RS3), D08, D13, J14
4. Ouchterlony procedure.	108	124	D13
5. Counter immunoelectrophoresis.	109	124	J09(RS2)
6. Define agglutination. Give two examples.	110	125	J04
7. Slide agglutination tests—four examples, applications.	110	125	D10
8. Coombs test.	110	127	J07(RS2)
9. Passive agglutination test.	111	126	J15(RS3), D16(RS3)
10. Indirect hemagglutination test—principle and use.	111	128	D12
11. Weil-Felix test.	111	393	J11(RS2), J12(RS2), J14(RS3), D14(RS3), D99, J06
12. Coagglutination test.	113	127	J14
13. Immunofluorescence test—principle and uses.	114	133	D13(RS3), J16
14. Direct immunofluorescence.	114	133	J08(RS2), J12(RS2)
15. Tri-dot enzyme-linked immunosorbent assay (ELISA)—applications.	116	133	J06, D14, D16

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BVJM ASTR

## CHAPTER 15

## COMPLEMENT SYSTEM

## Long Essay

- |                                                                                                                |     |     |     |
|----------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Define complement. Describe the classical complement pathway. Mention the biological effects of complement. | 121 | 138 | J14 |
|----------------------------------------------------------------------------------------------------------------|-----|-----|-----|

## Short Essays

- |                                           |     |     |                         |
|-------------------------------------------|-----|-----|-------------------------|
| 1. Describe complement and its functions. | 121 | 138 | J01, D02, D04           |
| 2. Classical complement pathway.          | 121 | 139 | J15(RS3)                |
| 3. Alternate complement pathway.          | 123 | 140 | D16(RS3), J10, J13, D16 |
| 4. Biological functions of complement.    | 123 | 142 | J10(RS2), D11(RS2), D05 |

## Short Answers

- |                                                  |     |     |                         |
|--------------------------------------------------|-----|-----|-------------------------|
| 1. Membrane attack complex of complement.        | 123 | 139 | D13                     |
| 2. Activation of alternative complement pathway. | 123 | 141 | J11(RS2)                |
| 3. Properdin.                                    | 123 | 141 | J07                     |
| 4. Complement deficiency states—mention two.     | 124 | 144 | D12(RS3), J02, J03, D06 |

## CHAPTER 16

## STRUCTURE AND FUNCTION OF IMMUNE SYSTEM

## Long Essays

- |                                                                                                                                             |     |     |          |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|
| 1. Describe the cells of immune system.                                                                                                     | 128 | 148 | D11      |
| 2. Mention the cells involved in immune response. Describe the development, identification and functions of different types of lymphocytes. | 128 | 148 | J02, D04 |

## Short Essays

- |                                     |     |     |          |
|-------------------------------------|-----|-----|----------|
| 1. Central lymphoid organs.         | 127 | 145 | J03      |
| 2. Peripheral lymphoid organs.      | 128 | 146 | D02      |
| 3. Cells of lymphoreticular system. | 128 | 148 | D14(RS3) |
| 4. Mononuclear phagocytic system.   | 131 | 153 | D13      |

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	BVJM	ASTR	
5. Functions of macrophages.	131	154	D10(RS2), D00
6. Phagocytes.	131	154	J14(RS3)
7. Major histocompatibility complex and its applications.	133	156	D09(RS2), J02, D06
8. Human leukocyte antigens (HLA)—role in immunity.	133	156	D10(RS2), J12(RS2), D99
9. HLA typing.	134	197	J08(RS2)
<b>Short Answers</b>			
1. Draw and label section of lymph node.	—	146	D07
2. Diagram of cut sections of spleen.	—	147	J05
3. Antigen presenting cell.	—	162	J11(RS2), J01, J02, D04
4. Name primary lymphoid organs and write their functions.	127	145	D15(RS3)
5. Runt disease.	128	—	D08
6. List four properties of T-cells.	129	149	J00, D12
7. Describe four properties of B lymphocyte.	129	151	J01, D02
8. Three differences between 'B' and 'T' lymphocytes.	129	153	D08(RS2)
9. Functions of T-cells.	130	151	J13
10. Subsets of T lymphocytes.	130	151	J07
11. Helper T-cell.	130	151	D14
12. CD4 cell.	130	151	D09(RS2)
13. Lymphokine activated killer cell.	131	—	D10
14. B cell.	131	151	J08(RS2)
15. Plasma cell.	131	152	J00, D00, J03
16. Natural killer cell (NK cell)—functions.	131	153	J09(RS2), J14, D16
17. Macrophage (tissue).	131	153	J07(RS2), J05, D06
18. What are the main function of macrophages and NK cells?	131	153	D99
19. Structure of major histocompatibility complex (MHC).	133	156	D15(RS3)
20. Uses of HLA typing.	134	—	D03, D07
21. MHC restriction.	134	—	J08(RS2), J13(RS3), D13

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BVJM ASTR

## CHAPTER 17

## IMMUNE RESPONSE

## Long Essays

- |                                                                                                                             |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
| 1. Explain the mechanism of antibody production. Describe the structure and properties of each of the immunoglobulin class. | 137, 99  | 110      | D99      |
| 2. Enumerate cells involved in immune response. Describe in detail cell-mediated immunity.                                  | 128, 141 | 148, 165 | J15      |
| 3. Describe the mechanism of cell-mediated immunity (CMI) and the role of cytokines and MHC.                                | 141      | 164, 156 | J09(RS2) |

## Short Essays

- |                                                                    |     |     |                                        |
|--------------------------------------------------------------------|-----|-----|----------------------------------------|
| 1. Humoral immune response.                                        | 136 | 167 | J13(RS3)                               |
| 2. Monoclonal antibody—principle, production and its applications. | 138 | 116 | J09(RS2), J01, J03, D08, D12, J15, D16 |
| 3. Cell-mediated immunity (immune response).                       | 141 | 164 | J12(RS2), J07                          |
| 4. Cytokines.                                                      | 141 | 158 | J07(RS2), D07(RS2), D00, D01, D02      |
| 5. Immunological tolerance.                                        | 144 | 182 | J07(RS2), J02                          |

## Short Answers

- |                                                                  |     |     |                                                       |
|------------------------------------------------------------------|-----|-----|-------------------------------------------------------|
| 1. Features of secondary immune response.                        | 137 | —   | J13                                                   |
| 2. Fate of antigens in tissues.                                  | 137 | —   | D12                                                   |
| 3. Hybridoma cell.                                               | 138 | 116 | D13                                                   |
| 4. Adjuvants.                                                    | 140 | 107 | D09(RS2), D10(RS2), J12(RS2), D12(RS3), D13(RS3), J03 |
| 5. Immunosuppressive agents.                                     | 140 | —   | D01, J02                                              |
| 6. Name three interleukins and state their predominant function. | 142 | 160 | D08(RS2)                                              |
| 7. Interleukin II.                                               | 142 | 160 | J03                                                   |
| 8. What test is done to test cell-mediated immunity?             | 143 | —   | D99                                                   |
| 9. Mechanism of immune tolerance.                                | 144 | 182 | J13                                                   |

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**CHAPTER 18****IMMUNODEFICIENCY DISEASES****Short Answers**

1. Types of primary immunodeficiency diseases and one example for each.	147	187	D14(RS3)
2. Enumerate immunodeficiency diseases.	148	187	D13(RS3), D14
3. T cell immunodeficiency disorders.	148	189	D10
4. DiGeorge syndrome.	149	189	D12
5. Disorders of phagocytosis.	150	191	D07

**CHAPTER 19****HYPERSENSITIVITY****Long Essays**

1. Classify hypersensitivity. Describe the mechanism of each one of them with examples.	152	171	J12(RS2)
2. Define hypersensitivity. Classify hypersensitivity. Write in detail on type I hypersensitivity.	152, 153	171	D07(RS2), D08(RS2), J11(RS2), D11(RS2), D03, D05, J08, J13, J16
3. Define and classify hypersensitivity and describe anaphylaxis in detail.	152, 153	171, 174	J01
4. Define and classify hypersensitivity. Describe type III hypersensitivity.	152, 156	171, 177	D16(RS3)
5. Define and classify hypersensitivity reactions. Discuss type IV hypersensitivity.	152, 156	171, 179	J16(RS3)

**Short Essays**

1. Type I hypersensitivity (mechanism).	153	172	J15(RS3), J00
2. Anaphylaxis (mechanism).	153	172	D12(RS3), J04, J05, J11, J12
3. Atopy.	155	174	J03
4. Type II hypersensitivity.	155	176	J08(RS2), D13(RS3)
5. Type III hypersensitivity reactions.	156	177	D14(RS3), D07
6. Arthus reaction.	156	178	J10(RS2)
7. Type IV hypersensitivity (delayed hypersensitivity).	156	179	D06(RS2), J13(RS3), D15(RS3), D06, D10, J14

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	BVJM	ASTR	
<b>Short Answers</b>			
1. Enumerate different types of hypersensitivity reactions.	152	171	J06
2. Four differences between immediate and delayed immunity.	152	172	D13
3. Define anaphylaxis.	153	174	D00
4. Chemical mediators of anaphylaxis and their actions.	154	173	D14(RS3)
5. Prausnitz-Kustner reaction.	155	172	D14
6. Atopy (features).	155	174	D12
7. Mention type III hypersensitivity reactions.	156	177	J15
8. Arthus phenomenon.	156	178	D01, J02, D13

**CHAPTER 20****AUTOIMMUNITY****Short Essays**

1. Mechanism of autoimmunity.	160	183	D11(RS2), J02, D11, J16
2. Reasons for autoimmunity.	160	183	J08(RS2)
3. Sequestered antigens.	160	183	J07
4. Organ specific autoimmune diseases.	161	184	D05

**Short Answers**

1. Rheumatoid factor.	—	185	D14
2. Mechanisms of autoimmunity.	160	183	J13(RS3), J15(RS3), J16(RS3)
3. Sequestered antigens.	160	183	D12
4. Name (organ specific) autoimmune disease and autoantibodies.	161	184	D99, J07, D10
5. Name four systemic autoimmune diseases.	161	185	D16

**CHAPTER 21****TRANSPLANTATION AND TUMOR IMMUNITY****Short Essays**

1. Allograft.	163	193	D03
2. Transplantation antigens.	163	194	J07(RS2)
3. Graft rejection.	163	194	J15
4. Graft versus host reactions.	164	196	D02, D04
5. Immunological surveillance.	165	199	D10

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	BVJM	ASTR	
<b>Short Answers</b>			
1. Different types of transplantation.	163	193	D02
2. Allograft.	163	193	J14
3. Mechanism of allograft rejection.	163	196	J11(RS2)
4. Define graft versus host reaction.	164	198	D14
5. Tumor antigens.	165	198	J03

**CHAPTER 22****IMMUNOHEMATOLOGY****Short Answer**

1. Name three/two viruses transmitted by blood transfusion.	170	208	D16(RS3), J03
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**Section III: Systemic Bacteriology****CHAPTER 23****STAPHYLOCOCCUS****Long Essay**

1. Name the pyogenic cocci. Discuss the morphology, cultural characters, biochemical properties, virulence factors, diseases caused (pathogenesis) and laboratory diagnosis of <i>Staphylococcus aureus</i> . Add a note on drug resistance.	174, 177	211	J15(RS3), D10
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**Short Essays**

1. Characters of pathogenic staphylococci.	175	211	J11(RS2)
2. Virulence factors of <i>Staphylococcus aureus</i> and their disease association.	175	212	J13(RS3)
3. Toxins and enzymes produced by <i>Staphylococcus aureus</i> .	176	212	D07(RS2), J04
4. Lesions produced by <i>Staphylococcus aureus</i> .	177	215	J16(RS3)
5. Toxic shock syndrome.	177	213	D00, D01
6. Staphylococcal food poisoning.	177	213	J11, J14
7. Enumerate the diseases produced by <i>Staphylococcus aureus</i> . Add a note on their laboratory diagnosis.	177	215	D99
8. Coagulase test.	177	217	J04, D09, J12
9. Beta lactamase and its importance.	178	218	J07(RS2)

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	BVJM	ASTR	
10. Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA).	178	219	D11(RS2), D06, J07, D14

**Short Answers**

1. Enzymes and toxins of <i>Staphylococcus aureus</i> .	176	212	D15(RS3), D14
2. Alpha toxin.	176	212	J09
3. Enterotoxins of <i>Staphylococcus aureus</i> .	176	213	J00
4. Toxic shock syndrome toxin (TSST)/toxic shock syndrome.	176	213	J06, D13
5. Disease caused by <i>Staphylococcus aureus</i> .	177	215	J08, J11
6. Coagulase test (principle).	177	217	D06(RS2), J14(RS3), D00, D12, J13
7. Tube coagulase test (free coagulase).	177	217	J02, J05
8. Slide coagulase test (bound coagulase).	177	217	D02, D16
9. MRSA and MRSA detection methods.	178	219	D09(RS2), J14(RS3)
10. Laboratory diagnosis of staphylococcal skin infection.	179	216	D12(RS3)
11. Coagulase negative staphylococci.	180	219	D03
12. <i>Staphylococcus epidermidis</i> —two lesions caused.	181	220	J03, J04

**CHAPTER 24****STREPTOCOCCUS AND ENTEROCOCCUS****Long Essay**

1. Classify streptococci. Describe morphology, pathogenesis, virulence factors, toxins and enzymes produced by <i>Streptococcus pyogenes</i> . Add a note on laboratory diagnosis of <i>Streptococcus pyogenes</i> .	184, 186	221, 222	D14
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**Short Essays**

1. Classification of streptococci.	184	221	D09, D11
2. Enzymes produced by <i>Streptococcus pyogenes</i> .	187	223	D10(RS2)
3. Diseases caused by group A streptococci.	188	223	D13(RS3)
4. Nonsuppurative complications of <i>Streptococcus pyogenes</i> (Group A streptococci) and its laboratory diagnosis.	189	225	D15(RS3), D16(RS3), J02

Contd... —



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	BVJM	ASTR	
5. Laboratory diagnosis of rheumatic fever.	190	226	J10(RS2)
6. Antistreptolysin O (ASO) test.	191	228	J03
7. Group B streptococci.	191	228	J08(RS2), D11(RS2)
8. cAMP test.	191	229	J13
9. <i>Enterococcus</i> .	192	229	D10(RS2), J00, D02, D04, D09, J10, D11
10. Viridans group of streptococci.	192	231	J04
<b>Short Answers</b>			
1. Classification of streptococci.	184	221	J12(RS2), J08
2. Lancefield's grouping of streptococci.	185	227	D09(RS2)
3. Toxins and enzymes produced by <i>Streptococcus pyogenes</i> .	187	222	J10(RS2), J01, D04, J12, J16
4. Two non-suppurative post-streptococcal sequelae/lesions caused by streptococci.	189	225	D03, D09, J15
5. Rheumatic fever—disease mechanism/diagnosis.	189	225	D06(RS2), J13(RS3), J06
6. Antistreptolysin 'O' test/titer.	191	228	D07(RS2), J15(RS3), D05
7. Lesions caused by group 'B' streptococci.	191	228	D06
8. Christy Atkins and Munch-Peterson (cAMP) test.	191	229	D00, D01, J09
9. <i>Enterococcus</i> .	192	229	J10(RS2)
10. <i>Streptococcus viridans</i> .	192	231	J06, J07

**CHAPTER 25****PNEUMOCOCCUS****Short Essays**

1. Quellung reaction.	197	234	D08
2. C-reactive protein.	198	232	J01
3. Laboratory diagnosis of pneumococcal meningitis.	198	233	D03
4. Differences between pneumococci and <i>Streptococcus viridans</i> .	199	231	J07, D08

**Short Answers**

1. Draw a labeled diagram of pneumococci in negative stain.	196	232	D08
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Contd...

	BVJM	ASTR
2. Bile solubility test.	197	234 D00
3. Quellung test (reaction).	197	234 J04, J06, J14
4. C-reactive protein.	198	232 D06, J07, D14
5. Laboratory diagnosis of pneumococcal meningitis.	198	233 D13(RS3), D16(RS3)
6. Name four tests for identification of <i>Streptococcus pneumoniae</i> .	198	233 D07
7. Four difference between <i>Streptococcus viridians</i> (alpha hemolytic streptococci) and <i>Streptococcus pneumoniae</i> .	199	231 D08(RS2), J10, D10, J13

**CHAPTER 26****NEISSERIA AND MORAXELLA****Long Essays**

- |                                                                                                                                                                                                                                        |          |          |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------------|
| 1. Mention the etiologic agents of meningitis. Discuss the pathogenesis, clinical features and laboratory diagnosis of acute pyogenic meningitis caused by any one of them (meningococcal meningitis/ <i>Neisseria meningitidis</i> ). | 589, 202 | 592, 237 | J06, J12, D12 |
| 2. Describe the morphology, cultural characteristics, pathogenicity of <i>Neisseria gonorrhoeae</i> and write laboratory diagnosis of gonorrhea.                                                                                       | 204      | 239      | J00           |

**Short Essays**

- |                                                                      |     |     |                                                  |
|----------------------------------------------------------------------|-----|-----|--------------------------------------------------|
| 1. Meningococcal meningitis.                                         | 202 | 237 | D15(RS3)                                         |
| 2. <i>Neisseria gonorrhoeae</i> —morphology and cultural characters. | 204 | 239 | D06(RS2), J09(RS2)                               |
| 3. Determinants of pathogenicity of <i>Neisseria gonorrhoeae</i> .   | 205 | 239 | J13                                              |
| 4. Gonorrhea—pathogenesis and laboratory diagnosis.                  | 205 | 239 | D07(RS2), J11(RS2), D13(RS3), J03, J06, J08, J15 |
| 5. Non-gonococcal urethritis (NGU).                                  | 207 | 241 | D16(RS3), J10, D16                               |

**Short Answers**

- |                                                  |     |     |     |
|--------------------------------------------------|-----|-----|-----|
| 1. Morphology of <i>Neisseria meningitidis</i> . | 202 | 239 | J10 |
| 2. Water-can perineum.                           | 205 | 239 | D13 |

Contd... —

Contd.

	BVJM	ASTR	
3. Laboratory diagnosis of gonococcal urethritis.	206	240	J13(RS3)
4. List four organisms causing non-gonococcal urethritis.	207	241	D14

**CHAPTER 27****CORYNEBACTERIUM****Long Essay**

- |                                                                                                                                                                                     |          |          |                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------------------------|
| 1. Enumerate the organisms causing sore throat. Write on morphology and pathogenicity of <i>Corynebacterium diphtheriae</i> and laboratory diagnosis and prophylaxis of diphtheria. | 573, 210 | 599, 243 | D10(RS2),<br>D14(RS3), D08,<br>D11 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------------------------|

**Short Essays**

- |                                                                               |     |     |                       |
|-------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Laboratory diagnosis in a suspected case of diphtheria.                    | 213 | 245 | D08(RS2)              |
| 2. Toxicogenicity tests for <i>Corynebacterium diphtheriae</i> (Elek's test). | 214 | 247 | J16(RS3)              |
| 3. Immunoprophylaxis of diphtheria (prevention against diphtheria).           | 214 | 248 | D12(RS3), D12,<br>D16 |
| 4. DPT vaccine.                                                               | 215 | 248 | D03                   |

**Short Answers**

- |                                                                     |     |     |                                                 |
|---------------------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Morphology of <i>Corynebacterium diphtheriae</i> .               | 210 | 243 | J04, D05                                        |
| 2. Metachromatic granules.                                          | 210 | 243 | D03                                             |
| 3. Special stains used for <i>Corynebacterium diphtheriae</i> .     | 210 | 243 | J02, D06, J10                                   |
| 4. Cultural characteristics of <i>Corynebacterium diphtheriae</i> . | 210 | 246 | J08                                             |
| 5. Three biotypes of <i>Corynebacterium diphtheriae</i> .           | 211 | 247 | D11                                             |
| 6. Two complications of diphtheria.                                 | 213 | 245 | J00                                             |
| 7. Elek's test.                                                     | 214 | 247 | J14(RS3), D05                                   |
| 8. Prophylaxis against diphtheria.                                  | 214 | 248 | D07(RS2), J10                                   |
| 9. Diphtheria, pertussis and tetanus toxoid (DPT) vaccine.          | 215 | 248 | J07(RS2),<br>D13(RS3),<br>J16(RS3),<br>D16(RS3) |
| 10. <i>Corynebacterium ulcerans</i> .                               | 216 | 249 | D07                                             |

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BVJM ASTR

## CHAPTER 28

## BACILLUS

## Short Essays

- |                                                   |     |     |               |
|---------------------------------------------------|-----|-----|---------------|
| 1. Pathogenicity of <i>Bacillus anthracis</i> .   | 221 | 250 | J02           |
| 2. Malignant pustule.                             | 221 | 251 | D07(RS2), J05 |
| 3. Hide porter's disease.                         | 221 | 251 | J10(RS2)      |
| 4. Laboratory diagnosis of hide porter's disease. | 221 | 252 | J09(RS2)      |

## Short Answers

- |                                               |     |     |                                              |
|-----------------------------------------------|-----|-----|----------------------------------------------|
| 1. Cutaneous anthrax (hide porter's disease). | 221 | 251 | J13(RS3),<br>D15(RS3), D00,<br>J03, D06      |
| 2. Malignant pustule.                         | 221 | 251 | D08(RS2),<br>J15(RS3), D01,<br>D02, D05, J12 |
| 3. Wool-sorter's disease.                     | 221 | 251 | D16                                          |
| 4. McFadyen's reaction.                       | 222 | 252 | D06(RS2), D11,<br>D14, J15                   |
| 5. Ascoli's thermoprecipitation test.         | 222 | 252 | D09                                          |

## CHAPTER 29

## CLOSTRIDIUM

## Long Essays

- |                                                                                                                                     |          |          |                       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-----------------------|
| 1. Classify clostridia. Discuss the pathogenicity and laboratory diagnosis of <i>Clostridium welchii</i> .                          | 227, 229 | 256, 258 | D01                   |
| 2. Classify the clostridia of medical importance. Describe the pathogenicity, laboratory diagnosis and prophylaxis of gas gangrene. | 227, 229 | 256, 258 | D12(RS3), J07,<br>J14 |

## Short Essays

- |                                                      |     |     |                                                 |
|------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Stormy clot reaction.                             | 228 | —   | D00                                             |
| 2. Nagler's reaction.                                | 228 | 260 | D02, D04, D06,<br>J11, D11                      |
| 3. Pathogenicity of <i>Clostridium perfringens</i> . | 229 | 258 | D10                                             |
| 4. Gas gangrene—pathogenesis, laboratory diagnosis.  | 229 | 258 | D08(RS2),<br>J12(RS2),<br>D16(RS3), J06,<br>J12 |

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5. Exotoxin of <i>Clostridium tetani</i> .	231	261	D13
6. Tetanus—pathogenesis, clinical features, laboratory diagnosis, immunoprophylaxis.	231	261	J11(RS2), D14(RS3), D15(RS3), D99, J04, D05, D07, D08, J09, J15
7. <i>Clostridium botulinum</i> —pathogenicity.	232	263	D12
8. <i>Clostridium difficile</i> .	234	265	J16
9. Pseudomembranous colitis (antibiotic associated colitis/diarrhea).	234	265	D12, J13, J14

**Short Answers**

1. Nagler's reaction.	228	260	D06(RS2), J10(RS2), J10
2. Gas gangrene—four clostridia causing gas gangrene, diagnosis.	229	258	D99, J00, D07, J16
3. <i>Clostridium tetani</i> —morphology.	230	260	J09(RS2), D03
4. Tetanospasmin.	231	261	J11(RS2)
5. Tetanus—pathogenesis, laboratory diagnosis.	231	261	D13(RS3), J07
6. <i>Clostridium difficile</i> .	234	265	J07(RS2), J08(RS2)
7. Pseudomembranous enterocolitis (diagnosis).	234	265	J09(RS2)

**CHAPTER 30****NONSPORING ANEROBES****Short Essay**

1. Nonsporing anaerobes.	237	266	J14(RS3), D15(RS3), J13
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**Short Answers**

1. Give two examples for anaerobic gram-positive spore bearing bacilli.	238	256	D05
2. Name four nonsporing anaerobes.	238	266	D03, J10, D11
3. Enumerate four anaerobic gram-negative bacilli.	238	266	J09
4. <i>Bacteroides</i> .	239	267	J07(RS2)
5. What is the natural habitat of <i>Bacteroides fragilis</i> ? What infection do they cause?	239	267	D99
6. Enumerate four lesions caused by nonsporing anaerobes.	241	268	J11

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BVJM ASTR

## CHAPTER 31

## ENTEROBACTERIACEAE

## Short Essays

- |                                                                                        |     |     |                                    |
|----------------------------------------------------------------------------------------|-----|-----|------------------------------------|
| 1. Significant bacteriuria.                                                            | —   | 303 | J05                                |
| 2. <i>Escherichia coli</i> —infections caused.                                         | 244 | 299 | J07(RS2),<br>J08(RS2)              |
| 3. Types of <i>Escherichia coli</i> producing diarrhea—diarrhoeogenic <i>E. coli</i> . | 247 | 303 | D07(RS2),<br>D12(RS3),<br>J16(RS3) |
| 4. Enteropathogenic <i>Escherichia coli</i> .                                          | 247 | 303 | D10(RS2)                           |
| 5. Enterotoxigenic <i>E. coli</i> .                                                    | 247 | 304 | D12                                |

## Short Answers

- |                                                                                         |     |     |                       |
|-----------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Significant bacteriuria.                                                             | —   | 303 | D07(RS2), J12,<br>D16 |
| 2. Rabbit ileal loop technique.                                                         | 246 | 301 | J08(RS2)              |
| 3. Enumerate diseases caused by <i>Escherichia coli</i> .                               | 247 | 301 | D13(RS3)              |
| 4. Diarrhoeogenic <i>Esch. coli</i> ( <i>Escherichia coli</i> groups causing diarrhea). | 247 | 303 | J04, J07              |
| 5. What is enteropathogenic <i>E. coli</i> (EPEC).                                      | 247 | 303 | D00, J03, J11         |
| 6. Enterotoxigenic <i>Escherichia coli</i> .                                            | 247 | 304 | D16(RS3)              |
| 7. Enteroinvasive <i>E. coli</i> (EIEC).                                                | 248 | 304 | D01                   |
| 8. Verotoxigenic <i>Escherichia coli</i> .                                              | 248 | 304 | D14                   |
| 9. Enteraggregative <i>E. coli</i> .                                                    | 248 | 304 | D08                   |
| 10. Dienes phenomenon.                                                                  | 253 | 310 | J12                   |

## CHAPTER 32

## SHIGELLA

## Short Essays

- |                                              |     |     |          |
|----------------------------------------------|-----|-----|----------|
| 1. <i>Shigella sonnei</i> .                  | 259 | 305 | J08      |
| 2. Bacillary dysentery.                      | 259 | 305 | D09(RS2) |
| 3. Laboratory diagnosis of <i>Shigella</i> . | 259 | 306 | D07      |

## Short Answers

- |                                                                                  |     |     |          |
|----------------------------------------------------------------------------------|-----|-----|----------|
| 1. Classification of <i>Shigella</i> (mention four species of <i>Shigella</i> ). | 258 | 305 | J12, J16 |
| 2. <i>Shigella flexneri</i> .                                                    | 258 | 305 | J10(RS2) |

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3. Laboratory diagnosis of shigellosis (bacillary dysentery).	259	306	J15(RS3), J16(RS3)

**CHAPTER 33****SALMONELLA****Long Essay**

- |                                                                                                                                                                                                                                                                                                                                                                             |               |               |                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-----------------------------------------------------------------|
| 1. Mention the general properties of the family Enterobacteriaceae. Mention important causes of PUO (pyrexia of unknown origin). Classify <i>Salmonella</i> . Enumerate the <i>Salmonella</i> causing enteric fever. Describe the pathogenesis and laboratory diagnosis and prevention of enteric (typhoid) fever. Add a note on antigenic variation in <i>Salmonella</i> . | 244, 597, 265 | 298, 598, 319 | D09(RS2), J10(RS2), J11(RS2), D11(RS2), J13(RS3), J03, D06, J16 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-----------------------------------------------------------------|

**Short Essays**

- |                                                      |     |     |                                        |
|------------------------------------------------------|-----|-----|----------------------------------------|
| 1. Antigens of <i>Salmonella</i> .                   | 263 | 318 | J01                                    |
| 2. Typhoid fever—pathogenesis, laboratory diagnosis. | 266 | 319 | D06(RS2), D12(RS3), J15(RS3), J07, D08 |
| 3. Widal test (interpretation).                      | 269 | 323 | J00, D01, D03, J10, D12, J14           |
| 4. Typhoid vaccines.                                 | 272 | 326 | J09(RS2), D14                          |

**Short Answers**

- |                                                 |     |     |                                   |
|-------------------------------------------------|-----|-----|-----------------------------------|
| 1. <i>Salmonella typhimurium</i> .              | —   | —   | J09(RS2)                          |
| 2. Antigens of <i>Salmonella</i> .              | 263 | 318 | J12                               |
| 3. Vi antigen.                                  | 264 | 318 | J04                               |
| 4. Kauffmann-White scheme.                      | 266 | 317 | D13                               |
| 5. Diseases caused by <i>Salmonella</i> .       | 266 | 317 | J08                               |
| 6. Widal test—uses and interpretations.         | 269 | 323 | J11(RS2), J12(RS2), D16(RS3), D05 |
| 7. Anamnestic reactions.                        | 270 | 324 | D13                               |
| 8. Methods to detect carriers of typhoid fever. | 271 | 325 | D14(RS3)                          |
| 9. Typhoid vaccines (TAB vaccine).              | 272 | 326 | D10(RS2), D15(RS3), J10, J13      |

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BVJM ASTR

**CHAPTER 34****VIBRIO****Long Essay**

- |                                                                                                                                                                                                                                               |          |          |                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------------------------------------------|
| 1. Enumerate the (bacterial) agents causing watery diarrhea or gastroenteritis. Classify vibrios. Describe the morphology, cultural characters, pathogenesis, laboratory diagnosis and immunoprophylaxis of <i>Vibrio cholerae</i> (cholera). | 582, 277 | 588, 328 | D06(RS2), J09(RS2), J12(RS2), D99, D02, D05, J10 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------------------------------------------|

**Short Essays**

- |                                                                                                                  |          |          |                                             |
|------------------------------------------------------------------------------------------------------------------|----------|----------|---------------------------------------------|
| 1. Media used in diagnosis of cholera.                                                                           | 277      | 334      | J14(RS3)                                    |
| 2. El tor vibrios.                                                                                               | 279      | 329      | D08(RS2), D00, J01, J02, J12, J16           |
| 3. Mention the differences between classical and El Tor vibrios.                                                 | 280      | 329      | J14                                         |
| 4. Laboratory diagnosis of cholera.                                                                              | 281      | 333      | D13(RS3), D14(RS3), D16(RS3), J05, J11, J15 |
| 5. Halophilic vibrios.                                                                                           | 283      | 337      | D11(RS2), J00, J03, D06, D10                |
| 6. List the pathogens causing diarrhea and write the pathogenesis of diarrhea caused by <i>Vibrio cholerae</i> . | 582, 281 | 588, 330 | J13                                         |

**Short Answers**

- |                                                                 |     |     |                    |
|-----------------------------------------------------------------|-----|-----|--------------------|
| 1. Classification of vibrio.                                    | 276 | 328 | D09                |
| 2. Cholera specimen—name three transport media with their uses. | 278 | 333 | D15(RS3), J16(RS3) |
| 3. Name four media used for plating <i>Vibrio cholerae</i> .    | 278 | 334 | J09                |
| 4. Cholera red reaction.                                        | 278 | 335 | J04                |
| 5. El Tor vibrios—four characters.                              | 279 | 329 | J08, J13           |
| 6. Cholera toxin—mechanism of action.                           | 279 | 330 | D12(RS3), J15(RS3) |
| 7. Non-agglutinable cholera vibrios.                            | 280 | 329 | J11                |
| 8. Differences between El Tor and classical vibrios.            | 280 | 329 | D11(RS2)           |
| 9. Two rapid tests for diagnosis of cholera.                    | 282 | —   | J01, D04           |
| 10. Halophilic vibrio.                                          | 283 | 337 | D07(RS2)           |

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**CHAPTER 35****CAMPYLOBACTER, HELICOBACTER AND MOBILUNCUS****Long Essay**

- |                                                                                                                        |     |     |     |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Write in details about the virulence factors, pathogenesis and laboratory diagnosis of <i>Helicobacter pylori</i> . | 289 | 362 | D13 |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|

**Short Essays**

- |                                                               |     |     |                                    |
|---------------------------------------------------------------|-----|-----|------------------------------------|
| 1. <i>Campylobacter</i> .                                     | 287 | 361 | D03, D05                           |
| 2. <i>Helicobacter pylori</i> —pathogenicity.                 | 288 | 362 | J07(RS2),<br>D11(RS2), D07,<br>D14 |
| 3. <i>Helicobacter pylori</i> infection—laboratory diagnosis. | 289 | 363 | D16                                |

**Short Answer**

- |                                 |     |     |                                    |
|---------------------------------|-----|-----|------------------------------------|
| 1. <i>Helicobacter pylori</i> . | 288 | 362 | D09(RS2),<br>J10(RS2),<br>J16(RS3) |
|---------------------------------|-----|-----|------------------------------------|

**CHAPTER 36****PSEUDOMONAS, STENTROPHOMONAS AND BURKHOLDERIA****Short Essay**

- |                         |     |     |          |
|-------------------------|-----|-----|----------|
| 1. <i>Pseudomonas</i> . | 293 | 339 | J07(RS2) |
|-------------------------|-----|-----|----------|

**Short Answers**

- |                                                                                      |     |     |                            |
|--------------------------------------------------------------------------------------|-----|-----|----------------------------|
| 1. Pigments produced by <i>Pseudomonas aeruginosa</i> .                              | 293 | 339 | J04                        |
| 2. Common infections caused (clinical importance) of <i>Pseudomonas aeruginosa</i> . | 295 | 340 | J09(RS2),<br>J15(RS3), J12 |
| 3. Blue pus.                                                                         | 295 | 340 | D02, J03                   |

**CHAPTER 37****YERSINIA, PASTEURELLA AND FRANCISELLA****Short Essays**

- |                                              |     |     |               |
|----------------------------------------------|-----|-----|---------------|
| 1. Pneumonic plague.                         | 302 | 313 | D13           |
| 2. Laboratory diagnosis in a case of plague. | 303 | 313 | D08(RS2), D14 |

**Short Answer**

- |                                           |     |     |     |
|-------------------------------------------|-----|-----|-----|
| 1. Morphology of <i>Yersinia pestis</i> . | 301 | 311 | J08 |
|-------------------------------------------|-----|-----|-----|

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BVJM ASTR

## CHAPTER 38

## LEGIONELLA

None

## CHAPTER 39

## HAEMOPHILUS AND GARDNERELLA

## Short Essays

- |                                                                                                 |     |     |               |
|-------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Satellitism.                                                                                 | 312 | 346 | D01, J02, J13 |
| 2. <i>Haemophilus influenzae</i> —<br>pathogenesis, infections caused,<br>laboratory diagnosis. | 313 | 346 | D10, D13      |
| 3. Chancroid.                                                                                   | 315 | 348 | J09           |

## Short Answers

- |                                                                                    |     |     |                                                                                     |
|------------------------------------------------------------------------------------|-----|-----|-------------------------------------------------------------------------------------|
| 1. X and V factors.                                                                | 312 | 345 | J00, J03, J10,<br>D12                                                               |
| 2. Satellitism (draw the diagram).                                                 | 312 | 346 | D09(RS2),<br>J09(RS2),<br>J10(RS2),<br>J11(RS2), J04,<br>J05, J06, D07,<br>J10, J14 |
| 3. What are two methods of preventing<br><i>Haemophilus influenzae</i> meningitis? | 315 | 348 | D99                                                                                 |
| 4. Chancroid (soft chancre).                                                       | 315 | 348 | D09(RS2), D13                                                                       |

## CHAPTER 40

## BORDETELLA

## Short Essays

- |                                                          |     |     |     |
|----------------------------------------------------------|-----|-----|-----|
| 1. Laboratory diagnosis of <i>Bordetella pertussis</i> . | 321 | 353 | D13 |
| 2. Cough plate technique.                                | 321 | 353 | J00 |

## Short Answers

- |                                                     |     |     |          |
|-----------------------------------------------------|-----|-----|----------|
| 1. Culture methods of <i>Bordetella pertussis</i> . | 319 | 353 | J13      |
| 2. Bordet-Gengou medium.                            | 319 | 353 | J16      |
| 3. Laboratory diagnosis of pertussis.               | 321 | 353 | D12      |
| 4. Cough plate method.                              | 321 | 353 | D00, D01 |

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## CHAPTER 41

## BRUCELLA

## Short Essays

- |                                                                |     |     |               |
|----------------------------------------------------------------|-----|-----|---------------|
| 1. Brucellosis.                                                | 326 | 356 | D13(RS3), J16 |
| 2. Laboratory diagnosis of undulant fever (human brucellosis). | 326 | 358 | J15(RS3), D99 |

## Short Answers

- |                                                          |     |     |                                   |
|----------------------------------------------------------|-----|-----|-----------------------------------|
| 1. Classify brucellae (Name three species of brucellae). | 324 | 355 | D00, J04                          |
| 2. Castaneda's medium.                                   | 327 | 358 | D12                               |
| 3. Milk ring test.                                       | 328 | 360 | D06(RS2), D00, J01, D04, D11, J15 |

## CHAPTER 42

## MYCOBACTERIUM TUBERCULOSIS

## Long Essay

- |                                                                                                                                                                                                                                                                                                                                  |                    |                    |                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|----------------------------------------------------------------------|
| 1. Classify mycobacteria of medical importance. Describe the morphology, cultural characteristics, pathogenesis, clinical features and laboratory diagnosis of <i>Mycobacterium tuberculosis</i> (pulmonary tuberculosis). Add a note on Revised National Tuberculosis Control Program (RNTCP)/multidrug-resistant tuberculosis. | 331, 336, 342, 340 | 271, 273, 275, 281 | J07(RS2), D07(RS2), D08(RS2), D16(RS3), D00, J01, D03, D07, J13, J15 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|----------------------------------------------------------------------|

## Short Essays

- |                                                                               |     |     |                                   |
|-------------------------------------------------------------------------------|-----|-----|-----------------------------------|
| 1. Laboratory diagnosis of pulmonary tuberculosis.                            | 336 | 275 | D11(RS2), J14(RS3), D14(RS3), D14 |
| 2. Tuberculin test (Mantoux test).                                            | 336 | 279 | J10                               |
| 3. Concentration of sputum in laboratory diagnosis of pulmonary tuberculosis. | 337 | 275 | D02, D04, D08, D11                |
| 4. Bacillus Calmette-Guerine (BCG) vaccine.                                   | 341 | 281 | J15(RS3), D01, D09                |

## Short Answers

- |                                                      |     |     |               |
|------------------------------------------------------|-----|-----|---------------|
| 1. Classification of mycobacteria.                   | 331 | 271 | J16           |
| 2. Morphology of <i>Mycobacterium tuberculosis</i> . | 331 | 271 | J12           |
| 3. Name four media used for tubercle bacilli.        | 332 | 276 | J01, J02, D04 |

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	BVJM	ASTR	
4. Lowenstein-Jensen media (LJ media)—ingredients.	332	276	D01, D04
5. Name two liquid media used to grow mycobacteria.	333	277	J05
6. Cell wall of <i>Mycobacterium tuberculosis</i> .	334	271	D12
7. Tuberculin test (Mantoux test).	336	279	D12(RS3), J13(RS3), J16(RS3), J04
8. Collection of sputum for laboratory diagnosis of tuberculosis.	337	275	J11
9. Grading of smears in the laboratory diagnosis of pulmonary tuberculosis.	337	276	D09
10. Tests used for differentiating resistant <i>Mycobacterium tuberculosis</i> .	339	280	D10
11. BCG vaccine.	341	281	J09(RS2), J06, J14

**CHAPTER 43****NONTUBERCULOUS MYCOBACTERIA****Short Essay**

- |                           |     |     |                                         |
|---------------------------|-----|-----|-----------------------------------------|
| 1. Atypical mycobacteria. | 346 | 282 | D09(RS2),<br>D13(RS3), J03,<br>J06, J07 |
|---------------------------|-----|-----|-----------------------------------------|

**Short Answers**

- |                                                                        |     |     |                            |
|------------------------------------------------------------------------|-----|-----|----------------------------|
| 1. Classify atypical mycobacteria with examples.                       | 347 | 283 | D11(RS2), D11              |
| 2. Photochromogens.                                                    | 347 | 283 | J08(RS2), J00,<br>J09, J16 |
| 3. Clinical disease caused by non-photochromogen type of mycobacteria. | 349 | 283 | D13                        |

**CHAPTER 44****MYCOBACTERIUM LEPRAE****Short Essays**

- |                                                         |     |     |                                                           |
|---------------------------------------------------------|-----|-----|-----------------------------------------------------------|
| 1. <i>M. leprae</i> —cultivation, laboratory diagnosis. | 352 | 285 | D15(RS3), D05,<br>D13                                     |
| 2. Lepromin test.                                       | 355 | 290 | J07(RS2),<br>J08(RS2),<br>J10(RS2), D00,<br>J04, J12, D16 |

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	BVJM	ASTR	
<b>Short Answers</b>			
1. Cultivation of <i>Mycobacterium leprae</i> .	353	285	J15
2. Name four animals used to cultivate <i>Mycobacterium leprae</i> .	353	285	J05, J10
3. Armadillo.	353	285	J10(RS2)
4. Four differences between lepromatous and tuberculoid leprosy.	354	286	D99, D13
5. Lepromin test.	355	290	D07(RS2), D11(RS2), J16
6. Mitsuda reaction.	356	290	J10(RS2), J01, D04

**CHAPTER 45****SPIROCHETES****Long Essays**

- |                                                                                                                                                                                                  |          |          |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------------------------|
| 1. Name spirochetes of medical importance along with diseases caused. Describe pathogenicity and laboratory diagnosis of leptospirosis (Weil's disease).                                         | 360, 370 | 372, 384 | J08(RS2),<br>D15(RS3), J04 |
| 2. Name the bacteria causing sexually transmitted diseases. Discuss the laboratory diagnosis and management of syphilis.                                                                         | 601, 362 | 604, 374 | J08                        |
| 3. Enumerate the serological tests for laboratory diagnosis of syphilis. Describe in detail the venereal disease research laboratory (VDRL) test. Add a note on merits and demerits of the test. | 363      | 376      | D16                        |

**Short Essays**

- |                                                                 |     |     |                            |
|-----------------------------------------------------------------|-----|-----|----------------------------|
| 1. Secondary syphilis and laboratory diagnosis.                 | 362 | 373 | J13(RS3)                   |
| 2. Laboratory diagnosis of syphilis.                            | 362 | 374 | D05                        |
| 3. Serodiagnosis of syphilis.                                   | 363 | 376 | D10(RS2)                   |
| 4. Nonspecific tests for syphilis (Standard test for syphilis). | 363 | 376 | J09(RS2),<br>J15(RS3), J16 |
| 5. VDRL test.                                                   | 363 | 376 | D14(RS3)                   |
| 6. Rapid plasma regain test.                                    | 364 | 376 | J11(RS2)                   |
| 7. Specific tests for syphilis.                                 | 364 | 378 | J12(RS2),<br>D16(RS3)      |
| 8. Relapsing fever.                                             | 367 | 381 | J11(RS2), D11              |
| 9. Lyme disease.                                                | 369 | 382 | J07                        |

Contd... —

Contd...

	BVJM	ASTR	
10. Weil's disease.	370	385	D06(RS2), D10(RS2), D99
11. Laboratory diagnosis of leptospirosis.	370	385	J16(RS3), D09, J14, D14

**Short Answers**

1. Name pathogenic spirochetes.	360	372	D03
2. Morphology of <i>Treponema pallidum</i> .	361	372	J10
3. Nichols strain of <i>Treponema pallidum</i> .	361	372	J09(RS2), J00
4. Laboratory diagnosis of primary syphilis.	362	374	D13(RS3)
5. Direct demonstration of spirochetes ( <i>T. pallidum</i> ).	362	375	J01, D04, D08, J15
6. Cardiolipin antigen.	362	376	D12
7. Venereal disease research laboratory (VDRL) test—principle, importance, uses and demerits.	363	376	D12(RS3), J14(RS3), J08, D09, D11
8. Rapid plasma reagin (RPR) test—principle.	364	376	J10, J14
9. Specific serological tests for syphilis (treponemal tests used in diagnosis of syphilis).	364	378	D11(RS2), J05, J09, J13
10. The fluorescent treponemal antibody absorption (FTA-ABS)—principle and use.	365	378	D13
11. Nonpathogenic treponemes.	367	—	D07
12. Relapsing fever.	367	381	J09(RS2)
13. Lyme disease—causative agent and clinical picture.	369	382	D07(RS2), D08(RS2), J03, D06, D07
14. Vincent's angina.	369	383	D16(RS3), J07, J12, J16
15. Draw a labeled diagram of direct smear from a case of Vincent's angina.	369	383	J11
16. Morphology of <i>Leptospira interrogans</i> .	370	384	J08
17. Name four serological tests used in diagnosis of leptospirosis.	371	386	J07

**CHAPTER 46****MYCOPLASMA AND UREAPLASMA****Short Essays**

1. Primary atypical pneumonia	377	406	D10(RS2)
2. Laboratory diagnosis of <i>Mycoplasma pneumoniae</i> .	377	407	D02, D04, D10

Contd...

Contd...

	BVJM	ASTR	
<b>Short Answers</b>			
1. <i>Mycoplasma</i> —four general features, colony characters, diseases caused, laboratory diagnosis.	375	405	D10(RS2), D15(RS3), J12, J13, J14, J16
2. Difference between <i>Mycoplasma</i> and L forms.	377	405	J09
3. Primary atypical pneumonia.	377	406	J11
4. Cold agglutination test.	378	408	D14

**CHAPTER 47****ACTINOMYCETES****Short Essays**

- |                      |     |     |          |
|----------------------|-----|-----|----------|
| 1. Actinomycetes.    | 381 | 292 | J14(RS3) |
| 2. <i>Nocardia</i> . | 383 | 293 | J11(RS2) |

**Short Answer**

- |                                                                   |     |     |               |
|-------------------------------------------------------------------|-----|-----|---------------|
| 1. Actinomycetes—important sites affected, clinical presentation. | 381 | 292 | J07(RS2), D09 |
|-------------------------------------------------------------------|-----|-----|---------------|

**CHAPTER 48****MISCELLANEOUS BACTERIA****Short Answers**

- |                                   |     |     |               |
|-----------------------------------|-----|-----|---------------|
| 2. Rat bite fever.                | 389 | 368 | D16(RS3), D05 |
| 3. <i>Gardnerella vaginalis</i> . | —   | 367 | J12(RS2)      |

**CHAPTER 49****RICKETTSIACEAE, ORIENTIA, COXIELLA, EHRLICHIA AND BARTONELLA****Short Essays**

- |                     |     |     |                                                       |
|---------------------|-----|-----|-------------------------------------------------------|
| 1. Epidemic typhus. | 395 | 390 | D08(RS2), D06                                         |
| 2. Q fever.         | 397 | 394 | D09(RS2), D10(RS2), D12(RS3), J15(RS3), D16(RS3), J16 |

**Short Answers**

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|-------------------------------------------------------------------------------------|-----|-----|-------------------------|
| 1. Morphology of Rickettsiae.                                                       | 394 | 388 | J09                     |
| 2. Four rickettsial pathogens, diseases caused by them and their arthropod vectors. | 394 | 389 | D99, D02, J05, D07, J08 |

Contd... —

Contd...

	BVJM	ASTR	
3. Four typhus fevers, bacteria causing it and their vectors.	394	389	J01, D04, D11
4. Epidemic typhus.	395	390	J06, D11
5. Brill-Zinsser disease.	395	390	D12, J13
6. Weil-Mooser reaction.	395	393	D10(RS2), D01, J10, J14
7. Q fever.	397	394	D10

**CHAPTER 50****CHLAMYDIA AND CHLAMYDOPHILA****Short Essays**

1. Chlamydia.	402	397	J12(RS2)
2. Trachoma-inclusion conjunctivitis (TRIC) agents.	402	398	D06(RS2), D09(RS2)
3. <i>Chlamydia trachomatis</i> .	403	398	D07
4. <i>Lymphogranuloma venereum</i> .	405	400	D13(RS3), D06

**Short Answers**

1. Four characteristics of chlamydiae.	402	397	J09
2. Elementary body.	403	397	D08(RS2)
3. Name the serotypes of chlamydiae and the diseases caused by them.	403	399	D99
4. Enumerate lesions caused by <i>Chlamydia</i> .	403	399	J11
5. Frei's test.	407	—	J12

**Section IV: Virology****CHAPTER 51****GENERAL PROPERTIES OF VIRUSES****Long Essay**

1. Classify viruses and write the methods of cultivation of viruses. Add a note on differences between viruses and bacteria.	421, 416, 412	413, 426, 411	J06
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**Short Essays**

1. Viral hemagglutination.	414	—	J04
2. Viral multiplication (viral replication).	415	414	D15(RS3), J16(RS3), J09, J13, J16

Contd... —



Contd...

	BVJM	ASTR	
3. Cultivation of viruses.	416	426	J08(RS2), J11(RS2), D16(RS3), D99, D06, J07, D10, J12
4. Embryonated egg.	416	426	D07
5. Draw a labeled diagram of embryonated egg. Name the viruses grown by the available routes.	417	426	J11
6. Tissue cultures.	417	427	J09(RS2), J04
7. Cultivation of viruses on cell line.	417	427	J05
8. Diploid cell culture.	418	428	J13
9. Detection of growth in tissue culture.	418	428	D08(RS2)
10. Cytopathogenic effect.	418	428	D08
11. Viral transformation of cells.	419	—	J07(RS2)
<b>Short Answers</b>			
1. State four differences between bacteria and viruses.	412	411	D02
2. Structure of viruses.	413	411	J12(RS2)
3. Viral symmetry.	413	411	D11
4. Enumerate four enveloped viruses.	413	412	J12
5. Lyophilization.	414	—	J08(RS2)
6. Viral hemagglutination.	414	—	J11(RS2), D15(RS3), D08, J15
7. Name four viruses with hemagglutinin spikes on their surfaces.	414	—	D10
8. Steps in viral replication.	415	414	D09, J15, D16
9. Definition of defective viruses with two examples.	416	417	D11
10. List methods of cultivation of viruses.	416	426	D12(RS3)
11. Chick embryo inoculation.	416	426	D15(RS3)
12. Cell culture.	417	427	D09(RS2)
13. Tissue culture.	417	427	D06(RS2), J07(RS2)
14. Common cell lines used for viral cultivation.	417	427	J13(RS3), D07
15. Diploid cell culture.	418	428	J08(RS2), D03
16. Continuous cell lines.	418	428	J09, D12

Contd... —

Contd...

	BVJM	ASTR	
17. Viral cytopathic effects (CPE).	418	428	D07(RS2), J14(RS3), D14(RS3), D06, D13, J14, D14, J15
18. Define viral interference. Give one example.	419	428	J08(RS2), J10(RS2), J14(RS3), D00, D01, D02, J03, J16
19. Name methods of viral assays.	419	429	J12(RS2)
20. What is plaque assay? List two uses of it.	420	429	D99
21. Prions.	421	413	J09(RS2), D10(RS2), J12(RS2), D06, J12
22. Broad classification viruses.	421	413	D03
23. List deoxyribonucleic acid (DNA) viruses.	421	413	J15(RS3), D06, D08, J09, J15
24. Enumerate four ribonucleic acid (RNA) viruses.	422	413	J14

**CHAPTER 52****VIRUS-HOST INTERACTIONS****Long Essay**

- |                                                                                                                      |          |          |     |
|----------------------------------------------------------------------------------------------------------------------|----------|----------|-----|
| 1. Draw a neat labeled diagram of virus morphology. Discuss in details about laboratory diagnosis of viral diseases. | 413, 428 | 412, 424 | D12 |
|----------------------------------------------------------------------------------------------------------------------|----------|----------|-----|

**Short Essays**

- |                                                                               |     |     |                                                                   |
|-------------------------------------------------------------------------------|-----|-----|-------------------------------------------------------------------|
| 1. Congenital viral infections.                                               | —   | 604 | D10                                                               |
| 2. Inclusion bodies and their importance.                                     | 426 | 422 | J09(RS2), J00,<br>D01, D03, D11,<br>D12                           |
| 3. Immunology of viral infections—role of nonspecific immunological response. | 428 | 422 | J08, J11                                                          |
| 4. Viral interferon—mode of action, clinical use.                             | 428 | 422 | D09(RS2),<br>D10(RS2),<br>D11(RS2), D04,<br>D02, J03, D08,<br>D09 |
| 5. Rapid diagnosis of viral infections.                                       | 429 | 425 | D16                                                               |
| 6. Antiviral agents.                                                          | 431 | 430 | J02, D11                                                          |

Contd... —

Contd...

	BVJM	ASTR	
<b>Short Answers</b>			
1. List four rapid diagnostic tests in virology.	—	—	D00, J02
2. Inclusion bodies—examples of intranuclear and intracytoplasmic (two each), importance.	426	422	D10(RS2), D00, D04, J05, D06, J07, J09, D09
3. Cowdry bodies—types A/type B.	426	421	J04, D08, J13
4. Interferons—alpha/gamma.	428	422	J11(RS2), J00, D05, J06, D06, J13
5. Name four diagnostic tests in virology.	429	425	D01
6. Antiviral agents—list four.	431	430	J14(RS3), D03, J05, D08, J11

**CHAPTER 53****BACTERIOPHAGE****Short Essays**

- |                                         |     |     |                                        |
|-----------------------------------------|-----|-----|----------------------------------------|
| 1. Bacteriophage—structure, life cycle. | 434 | 454 | D08(RS2), D10(RS2), D15(RS3), D10, J15 |
| 2. Bacteriophage typing.                | 436 | 455 | J16                                    |

**Short Answers**

- |                                                   |     |     |                              |
|---------------------------------------------------|-----|-----|------------------------------|
| 1. Bacteriophage—draw a labeled diagram and uses. | 434 | 455 | D00, J09                     |
| 2. Bacteriophage typing—significance.             | 436 | 455 | J07(RS2), J11(RS2), D08, J09 |
| 3. Name four methods of typing of bacteria.       | —   | —   | J09                          |

**CHAPTER 54****POXVIRUS****Short Essays**

- |                                                          |     |     |          |
|----------------------------------------------------------|-----|-----|----------|
| 1. Enumerate poxviruses and the diseases caused by them. | 439 | 451 | J01      |
| 2. Molluscum contagiosum.                                | 441 | 453 | J04, D09 |

**Short Answer**

- |                          |     |     |                         |
|--------------------------|-----|-----|-------------------------|
| 1. Molluscum contagiosum | 441 | 453 | D09(RS2), D10(RS2), J00 |
|--------------------------|-----|-----|-------------------------|

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Contd...

BVJM ASTR

## CHAPTER 55

## HERPESVIRUS

## Long Essays

- |                                                                                                                                                                                                                               |     |          |                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|-----------------------------------------------------------------|
| 1. Classify herpesviruses/human herpes viral infections. Mention their general characters. Add a brief note on herpes simplex virus—morphology, pathogenesis, clinical features, laboratory diagnosis, antiviral agents used. | 444 | 433, 434 | D07(RS2), J11(RS2), D11(RS2), J13(RS3), J16(RS3), J03, D10, D16 |
| 2. List the human herpesviruses. Discuss briefly their role as opportunistic pathogens and add a note on laboratory diagnosis.                                                                                                | 444 | 434, 436 | J05                                                             |

## Short Essays

- |                                                                        |     |     |                                             |
|------------------------------------------------------------------------|-----|-----|---------------------------------------------|
| 1. Herpes simplex virus—lesions caused and their laboratory diagnosis. | 443 | 434 | D09(RS2), D15(RS3), D99, D05, J10, J14      |
| 2. Genital herpes.                                                     | 444 | 436 | J13                                         |
| 3. Varicella zoster.                                                   | 445 | 437 | D07(RS2), J08(RS2), J06, D07, J16           |
| 4. Chickenpox.                                                         | 445 | 437 | J10(RS2), J14(RS3), D16(RS3)                |
| 5. Clinical features and prevention of varicella.                      | 445 | 438 | J07(RS2)                                    |
| 6. Herpes zoster—etiology, pathogenesis.                               | 445 | 438 | J04                                         |
| 7. Cytomegalovirus infections (cytomegalic inclusion disease).         | 446 | 439 | J15(RS3), J14                               |
| 8. Epstein-Barr virus—properties, lesions produced.                    | 447 | 441 | D08(RS2), J12(RS2), D01, J02, D07, D11, D14 |
| 9. Infectious mononucleosis.                                           | 447 | 442 | J01, D08                                    |

## Short Answers

- |                                            |     |     |          |
|--------------------------------------------|-----|-----|----------|
| 1. Classify herpesvirus.                   | 444 | 434 | D02      |
| 2. Herpes simplex type 2 (lesions caused). | 444 | 434 | J06, D07 |

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	BVJM	ASTR	
3. Differences between herpes simplex types 1 and 2.	444	434	D14
4. Pathogenicity of herpes simplex.	444	434	J07
5. Diseases caused by herpes simplex virus.	444	435	D14(RS3), D04
6. Tzanck cell.	445	436	J13
7. Varicella zoster virus.	445	437	J16(RS3)
8. Laboratory diagnosis of chickenpox.	446	439	D12(RS3)
9. Cytomegalovirus infections—clinical manifestations, complications of intrauterine infections.	446	439	D13(RS3), J00
10. Epstein-Barr virus—infections caused.	447	441	J04, J05, D05, J13
11. Infectious mononucleosis.	447	442	J06
12. Serological tests for infectious mononucleosis (Paul-Bunnell test)—principle.	448	443	J07(RS2), J09(RS2), J14(RS3), D00, D02, D03, D06, J09, D12, J16, D16

**CHAPTER 56****ADENOVIRUS****Short Essay**

- |                                                      |     |     |          |
|------------------------------------------------------|-----|-----|----------|
| 1. Adenovirus—pathogenesis and laboratory diagnosis. | 453 | 449 | J04, J06 |
|------------------------------------------------------|-----|-----|----------|

**Short Answers**

- |                                            |     |     |                         |
|--------------------------------------------|-----|-----|-------------------------|
| 1. Adenovirus—morphology, diseases caused. | 453 | 449 | J16(RS3), D16(RS3), J16 |
| 2. Acute follicular conjunctivitis.        | 453 | 450 | D05, D06                |
| 3. Laboratory diagnosis of adenovirus.     | 453 | 450 | J13                     |

**CHAPTER 57****PICORNAVIRUS****Long Essay**

- |                                                                                                                                                                                                                   |     |     |                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------|
| 1. Classify enteroviruses/picornaviruses. Describe the structure, pathogenicity, laboratory diagnosis of polioviruses. Add a note on prophylaxis against poliomyelitis and merits and demerits of polio vaccines. | 455 | 475 | J08(RS2), D08(RS2), J14(RS3), J15(RS3), D03, D08, D11, D14 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------|

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	BVJM	ASTR
<b>Short Essays</b>		
1. Poliomyelitis—pathogenesis, laboratory diagnosis, immunoprophylaxis (vaccine against poliomyelitis/polio vaccines).	457	476 D07(RS2), D09(RS2), D11(RS2), D12(RS3), J13(RS3), D05, J07, J11, J12, D13
2. Polio vaccines.	457	477 J16(RS3)
3. Differences between live and killed poliomyelitis vaccines.	458	478 D01
4. Pulse polio program.	459	479 J11(RS2)
5. Coxsackie viruses—infections caused.	459	480 D06(RS2), J09(RS2), J06
6. Rhinoviruses.	461	481 J12(RS2)
<b>Short Answers</b>		
1. Classification of picornavirus (list four picornavirus).	456	475 D00, D02, J03, D13
2. Prophylaxis against polio/polio vaccines.	457	477 D07(RS2), J10(RS2)
3. Salk vaccine.	457	477 J16
4. Oral polio vaccine.	458	477 D06(RS2), J14
5. Pulse polio vaccination.	459	479 J09
6. How to differentiate Coxsackie's A from Coxsackie's B virus?	459	481 D99, D06
7. Infections caused by Coxsackie's virus (Group B).	460	480 J00, J02, D10, D11, J15
8. Hand, foot and mouth disease.	460	480 D13(RS3)
9. Clinical features of ECHO viruses.	460	481 D12

**CHAPTER 58****ORTHOMYXOVIRUS****Long Essays**

- |                                                                                                                                                                                                                                                                             |               |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------|
| 1. Classify myxoviruses. Write about the morphology, antigenic structure, antigenic variation, pathogenesis, laboratory diagnosis and prophylaxis of influenza virus. What is antigenic shift and drift? Describe the role of the laboratory in the diagnosis of influenza. | 465, 466, 467 | 457, 460 D10(RS2), J08, J12, J13 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------|

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Contd...

	BVJM	ASTR
2. List the differences between orthomyxoviruses and paramyxoviruses. Add a note on the antigenic variations seen in orthomyxoviruses and their epidemiological importance.	464, 466	457, 458 D02

**Short Essays**

1. Differences between orthomyxovirus and paramyxovirus.	464	457	J08(RS2)
2. Influenza virus—morphology.	465	457	D08(RS2), J05
3. Antigenic variation in influenza virus—antigenic shift and antigenic drift.	466	458	D10(RS2), J11(RS2), D12(RS3), J16(RS3), J00, J03, J06, D14
4. Laboratory diagnosis of influenza.	467	460	D13(RS3)

**Short Answers**

1. What are the differences between influenza and parainfluenza viruses?	464	457	D99
2. Morphology of influenza virus—labeled diagram.	465	457	D06(RS2), D11(RS2), D03, J09, D13
3. Antigenic shift and antigenic drift.	466	459	D09(RS2), D01, J02, D08, D10
4. Antigenic shift.	466	459	J08(RS2), J04, J14
5. Antigenic drift.	466	459	D05, D06, J07, J16
6. Avian influenza—virus and laboratory diagnosis.	469	462	J08(RS2)
7. Influenza virus—H5N1.	469	462	J09(RS2)

**CHAPTER 59****PARAMYXOVIRUS****Short Essays**

1. Mumps—pathogenesis and complications.	474	465	D01, D04, D09, J15
2. Measles virus—pathogenicity, clinical features and laboratory diagnosis.	474	467	J12(RS2), J13(RS3), J02, D12
3. Respiratory syncytial virus.	476	470	J15(RS3)

Contd... —

Contd...

	BVJM	ASTR
<b>Short Answers</b>		
1. Name paramyxoviruses.	472	464 D03, J08, J09, D11, J16
2. Laboratory diagnosis of mumps.	474	466 D16(RS3)
3. Complications of mumps.	474	466 D11
4. Koplik's spots.	474	467 J16
5. Complications of measles.	475	468 D09, D13

**CHAPTER 60****ARBOVIRUS****Long Essays**

- |                                                                                                                                                                                                                                  |               |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------|
| 1. What are general properties of arboviruses? List the arboviral infections in India. How are they diagnosed?                                                                                                                   | 479, 480, 481 | 484, 485 J01                               |
| 2. Classify arboviruses. What are the general properties of arboviruses? List the arboviruses seen in India. Discuss the epidemiology, pathogenicity (clinical disease), complications and laboratory diagnosis of dengue virus. | 479, 480, 484 | 484, 489 J07(RS2), D16(RS3), J00, D09, D13 |
| 3. Enumerate important arboviruses. Enumerate the viruses causing encephalitis in India. Discuss the epidemiology and pathogenesis and laboratory diagnosis of Japanese B encephalitis virus.                                    | 480, 483      | 484, 488 J11                               |

**Short Essays**

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|-------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------|
| 1. Chikungunya virus.                                                                                                   | 482 | 486 J09(RS2)                                                             |
| 2. Japanese B encephalitis—laboratory diagnosis.                                                                        | 483 | 488 D07(RS2), D05, D14(RS3)                                              |
| 3. Yellow fever.                                                                                                        | 483 | 492 D13(RS3), D08                                                        |
| 4. Dengue virus/dengue fever—<br>infections caused, clinical<br>manifestations, complications,<br>laboratory diagnosis. | 484 | 489 D06(RS2), J08(RS2), J10(RS2), D10(RS2), J14(RS3), D15(RS3), D03, D08 |
| 5. Write short note of Kyasanur Forest disease (KFD).                                                                   | 485 | 493 D09(RS2), J14(RS3), D00, J03, J06, D16                               |

Contd... —



Contd...

	BVJM	ASTR	
<b>Short Answers</b>			
1. Name four viruses transmitted by arthropodes.	480	484	D07
2. Mention two mosquito-borne viral infections.	480	484	D14
3. Enumerate arbovirus infections in India.	480	484	D08(RS2), J04, D06, D11
4. Chikungunya fever.	482	486	D12
5. Dengue hemorrhagic fever.	484	490	J13(RS3)
6. Complications of dengue viruses.	484	490	J01
7. 17 D vaccine.	484	493	J05
8. NS-1 antigen.	485	491	J15
9. Hantavirus infection.	486	517	D12

**CHAPTER 61****RHABDOVIRUS****Long Essay**

- |                                                                                                                         |     |     |                                                                           |
|-------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------|
| 1. Describe the morphology (labeled diagram), pathogenesis, laboratory diagnosis and immunoprophylaxis of rabies virus. | 489 | 496 | J09(RS2), D09(RS2), J12(RS2), D12(RS3), D13(RS3), D99, J04, D06, J07, J10 |
|-------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------|

**Short Essays**

- |                                                          |     |     |                              |
|----------------------------------------------------------|-----|-----|------------------------------|
| 1. Differences between fixed and street virus in rabies. | 490 | 497 | J03                          |
| 2. Negri bodies.                                         | 491 | 498 | J11(RS2)                     |
| 3. Laboratory diagnosis of rabies.                       | 491 | 499 | J14(RS3)                     |
| 4. Immunoprophylaxis of rabies.                          | 492 | 500 | J08(RS2), J10(RS2), J11, J16 |
| 5. Antirabies vaccines.                                  | 492 | 500 | D10(RS2), J02, D03, D09      |
| 6. Non-neural rabies vaccine.                            | 493 | 500 | D06(RS2)                     |

**Short Answers**

- |                                  |     |     |                    |
|----------------------------------|-----|-----|--------------------|
| 1. Draw the rabies virus.        | 489 | 496 | J12                |
| 2. Street virus and fixed virus. | 490 | 497 | D08(RS2), D00, J06 |
| 3. Pathogenesis of rabies.       | 490 | 497 | D14(RS3), D12      |

Contd...

Contd...

	BVJM	ASTR	
4. Negri bodies.	491	498	D10(RS2), D11(RS2), J13(RS3), D16(RS3), D05, J12, J15
5. Vaccines used in rabies.	492	500	J01, D04
6. Neural vaccines against rabies.	492	500	J00, D13
7. Classify non-neural vaccines for rabies with examples.	493	500	J15(RS3), J05
8. Mention immunization schedule for human diploid cell culture vaccine for rabies.	494	501	J11

**CHAPTER 62****HEPATITIS VIRUSES****Long Essay**

- |                                                                                                                                                                               |                  |                  |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-----------------------------------------|
| 1. Enumerate the viruses causing hepatitis? Describe the morphology, pathogenesis, laboratory diagnosis (various markers and its significance) and prevention of hepatitis B. | 498,<br>499, 501 | 527,<br>530, 534 | D00, D01, D05,<br>D07, J09, J14,<br>J16 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-----------------------------------------|

**Short Essays**

- |                                                          |     |     |                                                 |
|----------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Hepatitis A virus (infective hepatitis).              | 498 | 528 | D03, D08                                        |
| 2. Hepatitis B virus (labeled diagram).                  | 499 | 530 | J00                                             |
| 3. Dane's particle.                                      | 500 | 530 | J10                                             |
| 4. Laboratory diagnosis of HBV (hepatitis B) infections. | 502 | 534 | J06, D06, D14                                   |
| 5. Serological markers of hepatitis B and its detection. | 502 | 534 | D06(RS2),<br>J11(RS2),<br>D11(RS2),<br>D12(RS3) |
| 6. Prophylaxis against hepatitis B virus infection.      | 503 | 535 | D10                                             |
| 7. Hepatitis B vaccines.                                 | 503 | 535 | J14(RS3)                                        |
| 8. Type C hepatitis virus (HCV).                         | 504 | 536 | D07(RS2), J08,<br>J15                           |
| 9. Type C hepatitis—laboratory diagnosis.                | 504 | 537 | J07(RS2), D99                                   |
| 10. Hepatitis D virus.                                   | 505 | 538 | D16                                             |

**Short Answers**

- |                                                   |   |   |     |
|---------------------------------------------------|---|---|-----|
| 1. Name two vaccine preventable hepatitis viruses | — | — | J11 |
|---------------------------------------------------|---|---|-----|

Contd... —

Contd...

	BVJM	ASTR	
2. How is the neonate born to hepatitis B positive mother protected?	—	536	D99
3. Hepatitis A—laboratory diagnosis.	498	528	J13(RS3), D13(RS3), J15(RS3), J07, D12
4. Neat diagram of hepatitis B virus.	500	530	J01, D04
5. HBsAg (Australia antigen).	500	530	J04, D11
6. Dane particle.	500	530	D08(RS2)
7. Hepatitis 'C' virus.	504	536	J10
8. Delta agent (delta virus).	505	538	D03, D05

**CHAPTER 63****RETROVIRUSES: HUMAN IMMUNODEFICIENCY VIRUS****Long Essay**

- |                                                                                                                                                   |                  |                  |                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|
| 1. Enumerate sexually transmitted diseases. Describe the morphology, pathogenesis and laboratory diagnosis of human immunodeficiency virus (HIV). | 601,<br>510, 512 | 604,<br>504, 510 | D06(RS2),<br>J10(RS2),<br>D14(RS3),<br>D15(RS3), J02,<br>D04, J15 |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|

**Short Essays**

- |                                                                     |     |     |                                 |
|---------------------------------------------------------------------|-----|-----|---------------------------------|
| 1. HIV virus—morphology (neat labeled diagram), routes of spread.   | 510 | 504 | D00, J10, D11                   |
| 2. Pathogenesis of HIV infection.                                   | 512 | 505 | D13(RS3)                        |
| 3. Methods of HIV transmission.                                     | 512 | 505 | D03                             |
| 4. Discuss the opportunistic infections of HIV viruses.             | 513 | 508 | J15(RS3)                        |
| 5. Protozoan infections in AIDS.                                    | 513 | 508 | J08(RS2)                        |
| 6. Opportunistic fungal infections in AIDS.                         | 513 | 508 | D07(RS2),<br>D11(RS2)           |
| 7. Laboratory diagnosis of human immunodeficiency virus (HIV)/AIDS. | 513 | 510 | J13(RS3), J08,<br>D08, J12, D12 |
| 8. Specific tests for HIV infections.                               | 514 | 510 | J07(RS2)                        |
| 9. Window period in HIV infection.                                  | 515 | 513 | J03                             |
| 10. Western blot test and its use in virology.                      | 516 | 511 | D02, J10                        |
| 11. Postexposure prophylaxis for HIV.                               | 518 | 514 | J12(RS2)                        |

**Short Answers**

- |                                                                  |     |     |          |
|------------------------------------------------------------------|-----|-----|----------|
| 1. Draw a labeled diagram of human immunodeficiency virus (HIV). | 510 | 504 | D02, J04 |
|------------------------------------------------------------------|-----|-----|----------|

Contd... —

Contd...

	BVJM	ASTR	
2. Mention the antigens of HIV.	510	504	J00
3. List three peptides of HIV-1 used for serodiagnosis.	510	510	D01
4. Modes of transmission of HIV.	512	505	D08(RS2)
5. Parent-to-child transmission of HIV.	512	505	J09(RS2)
6. State four opportunistic infections in AIDS.	513	508	J07
7. Opportunistic parasitic (protozoal) infections in HIV/AIDS.	513	508	J13(RS3), D00, D08, J09, J13, D14
8. Enumerate four fungi strongly associated with AIDS.	513	508	J11
9. Kaposi sarcoma.	513	546	J13
10. Laboratory diagnosis of HIV in newborn.	513	513	D07(RS2)
11. Explain the importance of p24 antigen detection.	514	511	J11
12. Window period in HIV.	515	513	J01, J07
13. Western-blot test for HIV—principle.	516	511	D11(RS2), D13
14. Monitoring progression of HIV infection.	517	—	J16(RS3)
15. Antiretroviral drugs.	519	513	J10

**CHAPTER 64****MISCELLANEOUS VIRUSES****Short Essays**

1. Pathogenesis and clinical presentation of parvovirus infection.	525	446	D13
2. Severe acute respiratory syndrome (SARS).	526	521	J09
3. Lassa fever virus.	527	518	J12
4. Rubella virus—pathogenesis and laboratory diagnosis.	528	471	D02, D04
5. Rotavirus.	529	524	D06, J12
6. Viral diarrheas/gastroenteritis (viruses causing diarrhea).	530	524	D09(RS2), D14(RS3), J15(RS3), D15(RS3), D16(RS3), D00, J05, J09, D16
7. Viral hemorrhagic fevers/hemorrhagic viruses.	531	—	J02, D02

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	BVJM	ASTR	
8. Slow viral diseases.	531	521	D08(RS2), D11(RS2), D12(RS3), D14(RS3), D07, J14
9. Prion diseases.	531	523	D06(RS2)
10. Creutzfeldt-Jacob disease.	532	523	D13

**Short Answers**

1. Parvovirus B-19—clinical manifestations.	525	446	D14
2. Ebola virus—diagnosis.	527	519	D14(RS3), D15(RS3)
3. Congenital rubella syndrome.	528	472	J07(RS2), J08(RS2), D12(RS3), J06
4. Rubella syndrome.	528	472	D10(RS2), J05, J07
5. Complications of rubella infection.	528	472	D14
6. Diagnosis of rubella virus infection.	528	473	D13
7. Rotavirus—morphology, diagnosis.	529	524	D99, D05
8. Viruses causing diarrhea.	530	524	D07, J15, J16
9. List the viruses causing acute hemorrhagic fevers.	531	—	D12(RS3), J15(RS3), J01, D04, J12
10. Slow viruses.	531	521	D15(RS3), J01, D04
11. Name two slow virus infections.	531	522	D03, J15
12. Prion diseases.	531	522	J15(RS3)
13. Gerstmann-Straussler-Scheinker syndrome.	532	522	D12
14. Subacute sclerosing panencephalitis.	533	522	D13(RS3)

**CHAPTER 65****ONCOGENIC VIRUSES****Short Essay**

1. Oncogenic viruses.	536	542	D15(RS3), J16(RS3)
-----------------------	-----	-----	-----------------------

**Short Answers**

1. Name four/two viruses causing oncogenesis.	537	542	J10(RS2), D00, D01, J06, J08, J10, J14, J15, D16
-----------------------------------------------	-----	-----	-----------------------------------------------------------

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	BVJM	ASTR	
2. Name oncogenic DNA viruses.	537	542	J05
3. Oncogenic RNA viruses.	538	542	D08
4. Human papillomavirus.	538	545	D07(RS2)

## Section V: Mycology

## CHAPTER 66

## MEDICAL MYCOLOGY

## Short Essays

1. Describe dimorphic fungi (laboratory diagnosis of any one).	544	550	D15(RS3), J01, D02, J03, D14
2. Classification of fungi based on sexual spore.	545	550	D00
3. Chlamydospore.	545	550	D07
4. Fungi imperfecti.	—	550	J07(RS2)
5. Slide culture technique for fungi.	546	552	J07
6. Laboratory diagnosis of fungal infections.	546	551	D06, J08, J10, D10
7. What is onychomycosis? List the fungi causing it and write its laboratory diagnosis.	—	567	D12
8. Superficial mycotic infections (fungal infections of skin).	547	553	J11(RS2), D11(RS2), D15(RS3)
9. Fungi infecting hair, nails, skin.	548	554	D08
10. Fungal infections of hair.	548	554	D11
11. Describe dermatophytes.	548	554	D07(RS2), J10(RS2), J14(RS3), D14(RS3), D04, D07, J12, J16
12. 'Tinea' infections.	548	554	D09
13. Laboratory diagnosis of dermatophytosis.	549	556	J00, D01, D16
14. Mycetoma (mycotic/eumycotic) foot—madura foot.	550	558	D06(RS2), J09(RS2), J12(RS2), D12(RS3), D14(RS3), D16(RS3), D00, J05, J07
15. Chromoblastomycosis.	551	561	J09

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	BVJM	ASTR	
16. <i>Sporothrix schenckii</i> .	551	560	J16(RS3)
17. Sporotrichosis.	551	560	J15(RS3), D99, D10
18. Describe morphology, pathogenesis and diagnosis <i>R. seeberi</i> .	552	562	J01, D11, J14, D14
19. Rhinosporidiosis.	552	562	D14(RS3), J02, J04, D05, D07, J08, J11, D13, J15
20. Histoplasmosis/histoplasma capsulatum—laboratory diagnosis.	552	562	D10(RS2), J12(RS2), J09, J14, J16
21. Opportunistic fungi/mycoses.	556	566	J10(RS2), J16(RS3), J02, D06, J11, J12
22. Aspergillosis (pathogenesis and clinical features).	559	572	D16(RS3), J06, D13
23. Morphology and cultural characters of <i>Aspergillus</i> species.	559	572	D01, J15
24. Penicillosis.	560	574	J14
25. Mucormycosis (zygomycosis).	560	570	D13(RS3), J04, D08, D09, D10, D16
26. <i>Candida albicans</i> /candidiasis—morphology, pathogenicity (infection caused), laboratory diagnosis.	557	568	J08(RS2), J13(RS3), J15(RS3), J16(RS3), D16(RS3), D99, J03, J04, D06, D09, J10, D10, J13, D16
27. <i>Cryptococcus neoformans</i> /cryptococcosis (cryptococcal/fungal meningitis)—morphology cultural characters and laboratory diagnosis.	555	569	D08(RS2), J10(RS2), J11(RS2), D12(RS3), D13(RS3), J14(RS3), D03, J05, D05, J11, D11, J15
28. Fungal infections of the external ear (otomycosis)—laboratory diagnosis.	562	—	J13(RS3), J01, D02, D04
29. Mycotoxicosis and mycetism/mycotoxins.	562	577	J15(RS3), J00, D03, J13

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	BVJM	ASTR
<b>Short Answers</b>		
1. What are the differences between mucor and rhizopus?	—	— J01, D04
2. Antifungal drugs.	—	553 J01, J04, D04, D08, D14, J15
3. Wood's lamp.	—	556 D07
4. Hair perforation test.	—	557 D09, D16
5. Describe the method of specimen collection in case of mycetoma.	—	559 J01, D02
6. Mention four differences between fungi and bacteria.	543	549 D10, D11
7. Classification of fungi.	544	549 D15(RS3), D03
8. Classify fungi morphologically.	544	549 J03, J10, D14
9. Differentiate between yeasts and yeast-like fungi.	544	549 D10
10. Four examples of filamentous fungi.	544	549 D09
11. Dimorphic fungi.	544	550 J09(RS2), D11(RS2), J05, J07, J10, J11
12. Classify the fungi based on the type of sexual spore produced.	545	550 D01, J02, D02
13. Name the sexual spores produced by fungi.	545	550 D10
14. Name four asexual spores of fungi.	545	550 J10(RS2), J03, J08, J12
15. Chlamydospores.	545	550 J07
16. Macroconidia (types).	545	557 D11
17. KOH mount.	546	551 J14(RS3)
18. Name stains used for fungi.	546	551 J15
19. Lactophenol cotton blue (LPCB) mount/stain.	546	551 J16(RS3), D14
20. Cultivation of fungi.	546	551 D08
21. Name two/four media used for growing fungi.	546	551 J04, D11
22. Slide culture for fungus.	546	552 D10(RS2)
23. Give classification of fungal infections with one example each.	547	550 D09
24. Name three agents causing superficial mycosis.	547	550 D08(RS2), J03
25. Athletes foot.	548	— J07(RS2)
26. Piedra.	548	554 J12

Contd... —



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	BVJM	ASTR	
27. Mention different species of dermatophytes.	548	555	J01, J02, D04
28. Name the parts of the body that can be infected by trichophyton.	548	555	J04
29. Mention the skin appendage not affected by microsporum and epidermophyton EACH.	548	555	J11
30. What is ID reaction? Name two fungi causing this reaction.	548	556	D02
31. Give two examples of fungi causing tinea capitis.	549	555	D05
32. Ectothrix and endothrix.	549	555	D07, J08
33. Two examples zoophilic, geophilic and anthropophilic dermatophytes.	549	555	D09
34. Laboratory diagnosis of dermatophytes.	549	556	J08(RS2), J01
35. Name four fungal species causing subcutaneous infections.	550	550	D01, D02
36. Draw the microscopic morphology of the three genera of dermatophytes.	550	555	D01
37. Mycetoma.	550	558	D03
38. List three causes of eumycotic mycetoma.	551	559	D14
39. Sporotrichosis.	551	560	J07(RS2)
40. Sclerotic bodies.	551	561	D11
41. Name the fungi causing systemic infections (mycosis).	552	550	D09(RS2), J10(RS2), J12
42. Rhinosporidium.	552	562	D11(RS2)
43. <i>Cryptococcus neoformans</i> .	555	569	J09(RS2)
44. Name four opportunistic fungi causing diseases in man.	556	551	D06(RS2), J14(RS3), D03, D04, J08
45. Cryptococcosis—laboratory diagnosis.	556	569	D16(RS3), J12
46. Mention four species of <i>Candida</i> .	557	566	J02
47. Infections caused by <i>Candida albicans</i> .	557	567	J05
48. Laboratory diagnosis of candidiasis.	557	567	D12(RS3)
49. Describe germ tube test (Reynolds-Braude phenomenon).	558	568	D06(RS2), D09(RS2), J10(RS2), J14(RS3), D01, D03, J07, J09, D14, J15, D16

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## Companion for 2nd MBBS

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	BVJM	ASTR	
50. <i>Aspergillus</i> .	559	572	D11(RS2)
51. Species of <i>Aspergillus</i> .	559	572	J10
52. Name four clinical conditions of <i>Aspergillus</i> infection.	559	572	J09
53. Draw and label <i>Aspergillus flavus</i> / <i>fumigatus</i> .	560	573	J08, D10
54. Draw labeled diagram of <i>Mucor</i> .	561	572	J02
55. Draw a labeled diagram of <i>Rhizopus</i> .	561	572	J03, J09, J11
56. <i>Penicillium</i> —diagram.	561	575	D07
57. Name the fungi which causes keratomycosis.	562	—	D10
58. Fungi infecting eye/oculomycosis.	562	—	D07, D09, D16
59. Fungal food poisoning.	562	—	D15(RS3)
60. Mycotoxins.	562	577	D08(RS2), D10(RS2), D12(RS3), J01, D04, D08
61. Aflatoxin.	562	575	J16

## Section VI: Clinical Microbiology

## CHAPTER 67

## NORMAL MICROBIAL FLORA OF THE HUMAN BODY

## Short Essay

- |                  |     |     |          |
|------------------|-----|-----|----------|
| 1. Normal flora. | 569 | 581 | J09(RS2) |
|------------------|-----|-----|----------|

## Short Answer

- |                                                                        |     |     |     |
|------------------------------------------------------------------------|-----|-----|-----|
| 1. Mention any two important roles played by normal flora of the body. | 569 | 582 | J08 |
|------------------------------------------------------------------------|-----|-----|-----|

## CHAPTER 68

## SORE THROAT AND PNEUMONIA

## Short Essays

- |                                                                                       |     |     |     |
|---------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Enumerate the primary bacterial pathogens that cause respiratory tract infections. | 573 | 599 | D99 |
| 2. List the bacterial pathogens causing pneumonia and write its laboratory diagnosis. | 575 | 600 | J13 |

## Short Answer

- |                                                                 |     |     |     |
|-----------------------------------------------------------------|-----|-----|-----|
| 1. Enumerate four viruses causing respiratory tract infections. | 573 | 599 | D10 |
|-----------------------------------------------------------------|-----|-----|-----|

Contd... —

Contd...

BVJM    ASTR

**CHAPTER 69****URINARY TRACT INFECTIONS****Long Essay**

- |                                                                                                                                                 |     |     |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Enumerate the organisms causing urinary tract infections. How will investigate a case of urinary tract infection in microbiology laboratory? | 578 | 586 | J02, D04, J11 |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|

**Short Essay**

- |                                                                           |     |     |                                    |
|---------------------------------------------------------------------------|-----|-----|------------------------------------|
| 1. Urinary tract infections—causative organisms and laboratory diagnosis. | 577 | 586 | J12(RS2),<br>D13(RS3), D99,<br>D13 |
|---------------------------------------------------------------------------|-----|-----|------------------------------------|

**Short Answer**

- |                                                                            |     |     |          |
|----------------------------------------------------------------------------|-----|-----|----------|
| 1. Name four common organisms (bacteria) causing urinary tract infections. | 578 | 586 | J09, D09 |
|----------------------------------------------------------------------------|-----|-----|----------|

**CHAPTER 70****DIARRHEAL DISEASES****Short Essays**

- |                                                   |     |     |                                         |
|---------------------------------------------------|-----|-----|-----------------------------------------|
| 1. Food poisoning.                                | 586 | 589 | J13(RS3),<br>D14(RS3)                   |
| 2. Bacterial food poisoning—laboratory diagnosis. | 586 | 589 | D10(RS2),<br>J14(RS3), D04,<br>J06, J15 |

**Short Answers**

- |                                                                                                    |     |     |                                         |
|----------------------------------------------------------------------------------------------------|-----|-----|-----------------------------------------|
| 1. Name four bacterial causes for diarrhea.                                                        | 582 | 588 | J05, D08                                |
| 2. Enumerate the viruses causing diarrhea (gastroenteritis). Underline the most important of them. | 582 | 588 | J10(RS2), J00,<br>J04, D04, J07,<br>D09 |
| 3. Food poisoning.                                                                                 | 586 | 589 | D07(RS2)                                |
| 4. Name four organisms (bacteria) causing food poisoning.                                          | 586 | 589 | D13(RS3),<br>D14(RS3), D03,<br>J09, J13 |

**CHAPTER 71****MENINGITIS****Long Essay**

- |                                                                                                                         |     |     |                       |
|-------------------------------------------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Enumerate the organisms causing meningitis. Give a detailed account of laboratory diagnosis of bacterial meningitis. | 589 | 592 | D10(RS2), J05,<br>D09 |
|-------------------------------------------------------------------------------------------------------------------------|-----|-----|-----------------------|

Contd. —

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	BVJM	ASTR
--	------	------

**Short Essays**

- |                                                                               |     |     |                                                 |
|-------------------------------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Bacterial/acute pyogenic meningitis—<br>etiology and laboratory diagnosis. | 589 | 590 | J07(RS2),<br>D12(RS3),<br>J13(RS3), D00,<br>D13 |
| 2. Aseptic meningitis.                                                        | 591 | 590 | J09                                             |

**Short Answers**

- |                                                                                                  |     |     |                                                   |
|--------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------|
| 1. Enumerate organisms causing acute<br>pyogenic meningitis.                                     | 589 | 592 | J16(RS3)                                          |
| 2. Enumerate bacteria causing acute<br>pyogenic meningitis in various age<br>groups of patients. | 589 | 592 | D14(RS3), J15                                     |
| 3. Aseptic meningitis.                                                                           | 591 | 590 | J07                                               |
| 4. Tuberculosis meningitis.                                                                      | 591 | 591 | D07(RS2)                                          |
| 5. Four microorganisms (viruses) which<br>cause aseptic meningitis.                              | 591 | 592 | D13(RS3), D99,<br>D01, J02, D05,<br>D09, J11, J13 |

**CHAPTER 72****BACTEREMIA, SEPTICEMIA AND  
INFECTIVE ENDOCARDITIS****Long Essay**

- |                                                                                                                                         |     |     |     |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Enumerate the bacteria causing<br>infective endocarditis. Discuss the<br>laboratory diagnosis of subacute<br>bacterial endocarditis. | 594 | 596 | J09 |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|

**Short Essays**

- |                            |     |     |          |
|----------------------------|-----|-----|----------|
| 1. Septicemia.             | 593 | 595 | J11      |
| 2. Infective endocarditis. | 593 | 595 | J09(RS2) |

**CHAPTER 73****FEVER OF UNKNOWN ORIGIN (FUO)****Long Essay**

- |                                                                                                                        |     |     |          |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|
| 1. Define pyrexia of unknown origin<br>(PUO) and describe the lab diagnosis<br>of pyrexia of unknown origin in detail. | 597 | 597 | D07(RS2) |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|

**Short Essay**

- |                                        |     |     |               |
|----------------------------------------|-----|-----|---------------|
| 1. Pyrexia of unknown origin—etiology. | 597 | 597 | D13(RS3), D00 |
|----------------------------------------|-----|-----|---------------|

**Short Answer**

- |                             |     |     |     |
|-----------------------------|-----|-----|-----|
| 1. Parasites causing fever. | 597 | 598 | J10 |
|-----------------------------|-----|-----|-----|

Contd...

Contd...

BVJM ASTR

**CHAPTER 74****SEXUALLY TRANSMITTED INFECTIONS****Short Answer**

- |                                                                           |     |     |          |
|---------------------------------------------------------------------------|-----|-----|----------|
| 1. Enumerate the organisms (viral) causing sexually transmitted diseases. | 601 | 604 | J03, D05 |
|---------------------------------------------------------------------------|-----|-----|----------|

**CHAPTER 75****HEALTH-ASSOCIATED INFECTION****Short Essays**

- |                                                                                                                             |     |     |                                                 |
|-----------------------------------------------------------------------------------------------------------------------------|-----|-----|-------------------------------------------------|
| 1. Biosafety in microbiology laboratory.                                                                                    | —   | —   | D10(RS2)                                        |
| 2. Nosocomial infections.                                                                                                   | 605 | 606 | J10(RS2),<br>J11(RS2),<br>J13(RS3), D00,<br>J06 |
| 3. List the organisms causing hospital-acquired infections (HAI) and what are the factors responsible for causation of HAI. | 607 | 607 | D12                                             |
| 4. Control of hospital infection.                                                                                           | 607 | 608 | J00                                             |

**Short Answers**

- |                                                                                         |     |     |                       |
|-----------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Iatrogenic infections.                                                               | —   | —   | D10, D16              |
| 2. Define hospital infection. Mention two organisms/four bacteria/two fungi causing it. | 605 | 606 | J04, J05, J07,<br>D09 |
| 3. Mention four organisms causing nosocomial infections.                                | 605 | 606 | D16                   |
| 4. Modes of transmission of hospital-acquired infections.                               | 606 | 607 | J08                   |

**CHAPTER 76****PROPHYLACTIC IMMUNIZATION****Short Essays**

- |                                              |     |     |               |
|----------------------------------------------|-----|-----|---------------|
| 1. MMR (measles, mumps and rubella) vaccine. | —   | —   | J05, J10, J14 |
| 2. Immunization schedule.                    | 612 | 205 | J11           |

**Short Answers**

- |                 |   |   |                                                                                     |
|-----------------|---|---|-------------------------------------------------------------------------------------|
| 1. MMR vaccine. | — | — | J08(RS2),<br>J09(RS2),<br>D09(RS2),<br>J14(RS3),<br>D14(RS3), D99,<br>J00, J04, D13 |
|-----------------|---|---|-------------------------------------------------------------------------------------|

Contd...

Contd...

	BVJM	ASTR	
2. Examples of live attenuated (viral) vaccines.	610	202	J06, J11, J13
3. Recombinant vaccine—name two.	611	204	J05, D12

**CHAPTER 77****ANTIMICROBIAL THERAPY**

None

**CHAPTER 78****ANTIMICROBIAL SENSITIVITY TESTING****Short Essay**

- |                                                                                                                           |     |    |                         |
|---------------------------------------------------------------------------------------------------------------------------|-----|----|-------------------------|
| 1. Explain different methods of antibody sensitivity testing in bacteria (antibiotic/antimicrobial susceptibility tests). | 621 | 83 | J13(RS3), D99, D03, D14 |
|---------------------------------------------------------------------------------------------------------------------------|-----|----|-------------------------|

**Short Answers**

- |                                                                                                              |     |    |                    |
|--------------------------------------------------------------------------------------------------------------|-----|----|--------------------|
| 1. Enumerate various methods of performing antimicrobial susceptibility testing and write principle of each. | 621 | 83 | D14(RS3), D15(RS3) |
| 2. Kirby-Bauer method.                                                                                       | 623 | 84 | D06(RS2)           |

**CHAPTER 79****MOLECULAR DETECTION OF MICROORGANISMS****Short Essays**

- |                                     |     |    |               |
|-------------------------------------|-----|----|---------------|
| 1. Molecular diagnostic methods.    | 628 | 60 | J14(RS3)      |
| 2. Polymerase chain reaction (PCR). | 628 | 60 | D09(RS2), D09 |

**Short Answer**

- |                               |     |    |          |
|-------------------------------|-----|----|----------|
| 1. Polymerase chain reaction. | 628 | 60 | J12(RS2) |
|-------------------------------|-----|----|----------|

**CHAPTER 80****BACTERIOLOGY OF WATER, MILK AND AIR****Short Essays**

- |                                                |     |     |               |
|------------------------------------------------|-----|-----|---------------|
| 1. Bacteriological analysis of drinking water. | 633 | 615 | D12(RS3), J05 |
| 2. Presumptive coliform test.                  | 634 | 617 | D07(RS2)      |

**Short Answers**

- |                                                                |     |     |               |
|----------------------------------------------------------------|-----|-----|---------------|
| 1. Presumptive coliform test.                                  | 634 | 617 | D14(RS3), D06 |
| 2. Name two methods used for measurement of air contamination. | 636 | 620 | J08           |

Contd... —

Contd...

BVJM ASTR

**CHAPTER 81****HAND HYGIENE**

None

**CHAPTER 82****BIOMEDICAL WASTE MANAGEMENT****Short Essays**

- |                                        |     |     |          |
|----------------------------------------|-----|-----|----------|
| 1. Biomedical waste management.        | 640 | 612 | J08(RS2) |
| 2. Classification of biomedical waste. | 641 | 613 | D16(RS3) |

**Short Answers**

- |                                                                    |     |     |          |
|--------------------------------------------------------------------|-----|-----|----------|
| 1. Biomedical waste management.                                    | 640 | 612 | J16(RS3) |
| 2. What are the methods available for treatment of hospital waste? | 641 | 612 | J08      |

**CHAPTER 83****VEHICLES AND VECTORS****Short Answers**

- |                                                       |     |   |     |
|-------------------------------------------------------|-----|---|-----|
| 1. Give four examples of vector transmitted diseases. | 645 | — | J08 |
| 2. Soft tick.                                         | 645 | — | J09 |

**MISCELLANEOUS****Short Essays**

- |                                                                                |   |     |                         |
|--------------------------------------------------------------------------------|---|-----|-------------------------|
| 1. Name the organisms causing otitis media and write the laboratory diagnosis. | — | 605 | D12                     |
| 2. Universal safety precautions.                                               | — | 608 | D15(RS3), J07, J08      |
| 3. Viral zoonotic diseases.                                                    | — | 630 | D08(RS2)                |
| 4. Blood culture—methods and indications.                                      | — | —   | D12(RS3), J00, J08, J09 |
| 5. Blood culture media and its applications.                                   | — | —   | D06(RS2)                |

**Short Answers**

- |                                                                                                                                                           |                    |                    |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-----|
| 1. What are the selective media used for staphylococci, <i>Bacillus anthracis</i> , <i>Neisseria gonorrhoeae</i> and <i>Corynebacterium diphtheriae</i> ? | 174, 220, 204, 211 | 216, 253, 241, 246 | D99 |
| 2. Aldehyde test.                                                                                                                                         | —                  | —                  | D08 |
| 3. Blood culture.                                                                                                                                         | —                  | —                  | J07 |

Contd... —

Contd...

	BVJM	ASTR	
4. Draw and label microscopic picture of Gram stain Eschar tissue.	—	—	D09(RS2)
5. Enumerate bacterial agents causing wound infection.	—	—	J13(RS3)
6. Lupus erythematosus cell phenomenon.	—	—	J11(RS2)
7. Micrometry.	—	—	J14(RS3)
8. Mouse—uses in microbiology.	—	—	D06, J11, J15
9. Name four pigment producing bacteria.	—	—	D04, D05, D11
10. Name three viral infections where antigens are detected in clinical samples.	—	—	D06(RS2)
11. Rabbit—mention important uses.	—	—	D09
12. Suckling mice—uses.	—	—	D09, D16
13. Teratogenic viruses.	—	—	J13(RS3), J05
14. Use of embryonated egg in laboratory.	—	—	J12(RS2), D06
15. What are latent infections? Give examples of viruses causing latent infections.	—	—	D10
16. Amplifier host.	—	89	D07
17. Give two examples for gram-negative cocci.	—	266	D05
18. Name the viruses causing skin lesions.	—	604	D07
19. Name two congenital infections.	—	604	J04
20. Name two viral diseases transmitted congenitally.	—	604	D05
21. Viruses causing conjunctivitis.	—	605	D07, J08
22. Components of universal precautions.	—	608	J06
23. Universal barrier precautions.	—	608	D07(RS2)
24. Biological false-positive conditions.	364	377	D10

Contd...



**PARASITOLOGY**

PNKR BVJP

**CHAPTER 1****GENERAL INTRODUCTION OF PARASITOLOGY****Short Answers**

1. Name two parasites having two intermediate hosts.	—	212	J12
2. Define definitive host and intermediate host.	2	4	D00, D15
3. Define definitive host, give two examples.	2	4	D01, D08
4. Define intermediate host. Name two parasites in which man is the intermediate host.	2	4, 212	D02, J03, D10, J11, J14, D16
5. Name four parasitic zoonotic diseases.	3	5	J00, J01, J02, D04
6. Vectors in parasitology.	4	5	J12(RS2)
7. Name four vectors which transmit parasitic/protozoal infections.	4	200	J05, J11, D16
8. Name two/four parasitic diseases where mosquitoes act as vectors.	4	200	D05
9. Name a parasite transmitted by EACH: cat, dog, pig, cow.	4	7	J11
10. Parasitic diseases transmitted through pig.	4	7	D08
11. Parasitic infections and malignancy.	5, 144	7	J07(RS2)
12. Give examples of protozoans which can be present in blood.	7	186	J04
13. Mention the parasites found in peripheral blood smears.	7	186	J01, D04
14. Enumerate four human parasites that live in the blood.	7	186	J12
15. Name three parasites found in the urine.	7	8	D09(RS2)

**CHAPTER 2****PROTOZOA****Short Answers**

1. Name the sporozoan parasites.	11	—	D10
2. Name three coccidial parasites.	11	—	D09(RS2)

Contd. —

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PNKR BVJP

## CHAPTER 3

## AMOEBAE

## Long Essays

- |                                                                                                                                  |            |        |               |
|----------------------------------------------------------------------------------------------------------------------------------|------------|--------|---------------|
| 1. Enumerate pathogenic and non-pathogenic amoebae. Describe the pathogenesis and laboratory diagnosis of intestinal amoebiasis. | 14, 16, 20 | 15, 18 | D09           |
| 2. Describe the morphology, pathogenesis and laboratory diagnosis of <i>Entamoeba histolytica</i> .                              | 15, 20     | 15     | J10(RS2), J06 |

## Short Essays

- |                                                                                 |    |    |                                        |
|---------------------------------------------------------------------------------|----|----|----------------------------------------|
| 1. Pathogenesis of amoebiasis.                                                  | 16 | 18 | D02, D04                               |
| 2. Pathogenesis of intestinal amoebiasis.                                       | 16 | 18 | J07(RS2)                               |
| 3. Invasive (extraintestinal) amoebiasis.                                       | 18 | 18 | D06(RS2), D09(RS2), D15(RS3), J12, D15 |
| 4. Amoebic liver abscess.                                                       | 19 | 18 | J05                                    |
| 5. Laboratory diagnosis of intestinal amoebiasis.                               | 20 | 18 | D07                                    |
| 6. Stool examination for amoebiasis.                                            | 20 | 18 | J13                                    |
| 7. Laboratory diagnosis of extraintestinal amoebiasis.                          | 22 | 19 | J09                                    |
| 8. Differences between <i>Entamoeba histolytica</i> and <i>Entamoeba coli</i> . | 24 | 22 | J00                                    |
| 9. Free living amoebae.                                                         | 25 | 23 | J13(RS3)                               |
| 10. Primary amoebic meningoencephalitis (swimming pool meningitis).             | 27 | 25 | D01, J04, D05, D16                     |
| 11. <i>Acanthamoeba</i> .                                                       | 27 | 26 | D10, D11                               |

## Short Answers

- |                                                                            |    |    |               |
|----------------------------------------------------------------------------|----|----|---------------|
| 1. Trophozoite of <i>Entamoeba histolytica</i> .                           | 15 | 15 | J08(RS2), D13 |
| 2. Draw a labeled diagram of <i>Entamoeba histolytica</i> vegetative form. | 15 | 16 | J11           |
| 3. Cysts of <i>E. histolytica</i> .                                        | 16 | 16 | J09, D12, D14 |
| 4. Mention the extraintestinal manifestations of amoebiasis.               | 18 | 18 | D16           |
| 5. List the sites of extraintestinal amoebiasis.                           | 19 | 18 | D16(RS3)      |
| 6. Complications of amoebiasis.                                            | 19 | 18 | D10(RS2)      |
| 7. Feature of stool in amoebic dysentery.                                  | 20 | 18 | D13(RS3)      |

Contd... —

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	PNKR	BVJP	
8. Mention four differences between amoebic and bacillary dysentery.	20	20	J12, D13
9. Laboratory diagnosis of extraintestinal amoebiasis.	22	19	D14(RS3)
10. Laboratory diagnosis of amoebic liver abscess.	22	19	J13(RS3)
11. Name the commensal amoebae of intestine.	23	21	J00, D00
12. Cyst of <i>Entamoeba coli</i> .	23	22	J10
13. List any two/ four differences between <i>Entamoeba histolytica</i> and <i>Entamoeba coli</i> .	24	22	J04, D10
14. Clinical manifestations of free living amoebae.	25	23	D12
15. Name the parasites that cause primary amoebic meningoencephalitis.	25	24	D99
16. Life cycle of <i>Naegleria fowleri</i> .	26	25	D12(RS3)
17. Primary amoebic meningoencephalitis.	27	25	J07(RS2)
18. Laboratory diagnosis of primary amoebic meningoencephalitis.	28	25	J15(RS3)
19. Enumerate four parasitic pathogens causing infection of the central nervous system.	25, 28	210	J12

**CHAPTER 4****INTESTINAL, ORAL AND GENITAL FLAGELLATES****Long Essay**

- |                                                                                                                         |    |        |          |
|-------------------------------------------------------------------------------------------------------------------------|----|--------|----------|
| 1. Classify flagellate protozoa. Describe life cycle, pathogenesis and laboratory diagnosis of <i>Giardia lamblia</i> . | 30 | 30, 31 | D12(RS3) |
|-------------------------------------------------------------------------------------------------------------------------|----|--------|----------|

**Short Essays**

- |                                                                                              |    |    |                         |
|----------------------------------------------------------------------------------------------|----|----|-------------------------|
| 1. Intestinal flagellates.                                                                   | 30 | 31 | D08(RS2)                |
| 2. <i>Giardia lamblia/intestinalis</i> (morphology, pathogenicity and laboratory diagnosis). | 30 | 31 | D01, J02, D14           |
| 3. Giardiasis.                                                                               | 32 | 31 | D05                     |
| 4. Laboratory diagnosis of giardiasis.                                                       | 33 | 32 | J15                     |
| 5. <i>Trichomonas vaginalis</i> .                                                            | 34 | 33 | J12(RS2), J14(RS3), D07 |

**Short Answers**

- |                             |    |    |               |
|-----------------------------|----|----|---------------|
| 1. <i>Giardia lamblia</i> . | 30 | 31 | D10(RS2), J07 |
|-----------------------------|----|----|---------------|

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	PNKR	BVJP	
2. Draw <i>Giardia lamblia</i> trophozoite and cyst.	31	31	D11(RS2), J14
3. Cyst of <i>Giardia intestinalis</i> .	31	31	J07(RS2)
4. Laboratory diagnosis of giardiasis.	33	32	D14(RS3)
5. Genital flagellates.	34	33	J12(RS2)
6. <i>Trichomonas vaginalis</i> .	34	33	D15(RS3), J16(RS3)
7. Morphology of <i>Trichomonas vaginalis</i> (diagrammatic representation).	34	33	J06, D06
8. Laboratory diagnosis of trichomonal vulvovaginitis.	35	34	D16(RS3)

**CHAPTER 5****HEMOFLAGELLATES****Long Essay**

- |                                                                                                                                                         |    |    |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|--------------------|
| 1. Describe in detail geographical distribution, habitat, morphology, life cycle, pathogenesis and laboratory diagnosis of <i>Leishmania donovani</i> . | 51 | 38 | J12(RS2), D99, J03 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|--------------------|

**Short Essays**

- |                                                                           |    |    |                              |
|---------------------------------------------------------------------------|----|----|------------------------------|
| 1. Chagas disease.                                                        | 47 | 50 | J13                          |
| 2. Leishman Donovan bodies (LD bodies).                                   | 52 | 38 | J05                          |
| 3. Kala-azar.                                                             | 54 | 40 | J06, D06                     |
| 4. Post-kala-azar dermal leishmanoid.                                     | 55 | 43 | D14                          |
| 5. Laboratory diagnosis of kala-azar.                                     | 55 | 41 | D12(RS3), J01, D03, D05, D08 |
| 6. Morphology and pathogenicity of agent causing cutaneous leishmaniasis. | 59 | 43 | D02, D04                     |
| 7. Mucocutaneous leishmaniasis (oriental sore).                           | 60 | 43 | J07, J08                     |

**Short Answers**

- |                                                                             |    |    |               |
|-----------------------------------------------------------------------------|----|----|---------------|
| 1. Classify hemoflagellates.                                                | 38 | 36 | D00, D01, J02 |
| 2. Name the different species of trypanosomes.                              | 40 | 45 | D07           |
| 3. Tsetse fly.                                                              | 41 | 45 | D03, J08      |
| 4. Clinical signs of Chaga's disease.                                       | 47 | 50 | D09           |
| 5. Classify leishmaniasis and list the agents causing each type of disease. | 51 | 37 | D13(RS3)      |

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	PNKR	BVJP	
6. LD bodies (draw and label).	52	38	J15(RS3), D01, D12, J16
7. Pathogenesis of <i>Leishmania donovani</i> .	54	40	D08(RS2)
8. Post-kala-azar dermal leishmaniasis.	55	43	D15
9. Name four serological tests for kala-azar.	57	42	J00, D02
10. Dermal leishmanoid (Delhi boil).	59	43	J00

**CHAPTER 6****MALARIA AND BABESIA****Long Essays**

- |                                                                                                                                                                                   |            |    |                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----|----------------------------------------|
| 1. Name the different plasmodia that infect man. Describe the morphology, life cycle, pathogenesis, clinical features and laboratory diagnosis of <i>P. falciparum</i> infection. | 64, 69, 79 | 54 | J07(RS2), D13(RS3), J16(RS3), J05, D14 |
| 2. Enumerate parasites found in blood. Mention the plasmodia of medical importance. Describe the life cycle, pathogenesis and laboratory diagnosis of <i>Plasmodium vivax</i> .   | 69         | 54 | D06(RS2), J13(RS3), D05, J12, D15      |
| 3. Mention the parasites causing anemia. Describe the life cycle and laboratory diagnosis of <i>Plasmodium falciparum</i> .                                                       | 71         | 54 | J00                                    |

**Short Essays**

- |                                                                       |    |    |                    |
|-----------------------------------------------------------------------|----|----|--------------------|
| 1. Exoerythrocytic schizogony.                                        | 66 | 57 | D03                |
| 2. Erythrocytic schizogony of <i>Plasmodium falciparum</i> .          | 66 | 56 | D12                |
| 3. <i>Plasmodium vivax</i> —life cycle.                               | 69 | 54 | J08(RS2), J14(RS3) |
| 4. Name four complications of malaria and their laboratory diagnosis. | 77 | 60 | J01                |
| 5. Complications of falciparum malaria.                               | 77 | 60 | D09                |
| 6. Black water fever.                                                 | 77 | 60 | J03, J14, J15      |
| 7. Laboratory diagnosis of malignant tertian malaria.                 | 79 | 60 | D06                |
| 8. Rapid diagnostic techniques of malaria.                            | 81 | 61 | D07(RS2)           |

**Short Answers**

- |                                                   |    |    |          |
|---------------------------------------------------|----|----|----------|
| 1. Gametocyte of <i>P. falciparum</i> .           | 71 | 57 | D08      |
| 2. Pathogenesis of <i>Plasmodium falciparum</i> . | 71 | 59 | D09(RS2) |

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Contd...

	PNKR	BVJP	
3. Draw a diagram of <i>Pt. falciparum</i> gametocyte.	72	57	D02, D07
4. Malignant tertian fever.	76	—	D13
5. Cerebral malaria.	76	60	J06
6. Name three complications produced by <i>Plasmodium falciparum</i> .	77	60	D06(RS2)
7. Tropical splenomegaly syndrome.	77	59	J16
8. Black water fever.	77	60	D16(RS3)
9. Quantitative buffy coat (QBC) test for malaria.	80	61	D11(RS2)
10. List rapid diagnostic tests for malaria.	81	61	D16(RS3)

**CHAPTER 7****COCCIDIA****Long Essay**

- |                                                                                                                                                                                           |    |         |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------|---------------|
| 1. Enumerate the parasites commonly infecting a patient of acquired immunodeficiency syndrome. Describe the morphology, life cycle and laboratory diagnosis of <i>Toxoplasma gondii</i> . | 87 | 211, 63 | D10(RS2), D10 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------|---------------|

**Short Essays**

- |                                                                        |    |    |                                   |
|------------------------------------------------------------------------|----|----|-----------------------------------|
| 1. <i>Toxoplasma gondii</i> .                                          | 87 | 63 | J07                               |
| 2. Life cycle of <i>Toxoplasma gondii</i> .                            | 89 | 64 | J14                               |
| 3. Toxoplasmosis.                                                      | 90 | 67 | D06                               |
| 4. Laboratory diagnosis of toxoplasmosis ( <i>Toxoplasma gondii</i> ). | 91 | 67 | D12(RS3), D00, J03, J11, J15, J16 |
| 5. Serological tests for toxoplasmosis.                                | 92 | 68 | J07(RS2)                          |
| 6. <i>Cryptosporidium parvum</i> .                                     | 94 | 75 | D10(RS2)                          |
| 7. Cryptosporidiosis.                                                  | 95 | 76 | D14(RS3)                          |

**Short Answers**

- |                                                |    |    |          |
|------------------------------------------------|----|----|----------|
| 1. Modes of infection of toxoplasma infection. | 90 | 67 | D12      |
| 2. Pathogenesis of <i>Toxoplasma gondii</i> .  | 90 | 67 | D06(RS2) |
| 3. Congenital toxoplasmosis.                   | 90 | 67 | D13(RS3) |
| 4. Symptoms of congenital toxoplasmosis.       | 90 | 67 | D11      |
| 5. Sabin-Feldman dye test.                     | 92 | 68 | D15      |
| 6. <i>Cryptosporidium</i> .                    | 95 | 75 | D07(RS2) |
| 7. How is cryptosporidiosis diagnosed?         | 96 | 77 | D99      |

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	PNKR	BVJP	
<b>CHAPTER 8</b>			
<b>MICROSPORA</b>			
<b>Short Answer</b>			
1. Microsporidia.	100	86	J11(RS2)
<b>CHAPTER 9</b>			
<b>PNEUMOCYSTIS JIROVECI</b>			
<b>Short Essays</b>			
1. <i>Pneumocystis carinii</i> ( <i>Pneumocystis jirovecii</i> ).	103	—	D06(RS2), J09(RS2)
2. Write the clinical features and laboratory diagnosis of pneumonia caused by <i>Pneumocystis carinii</i> .	104	—	D12
<b>CHAPTER 10</b>			
<b>BALANTIDIUM COLI</b>			
<b>Short Essay</b>			
1. Balantidiasis.	109	83	D16(RS3)
<b>Short Answers</b>			
1. <i>Balantidium coli</i> (morphology).	107	82	J05, D06
2. Labeled diagram of <i>Balantidium coli</i> .	107	83	J15
3. Pathogenesis of <i>Balantidium coli</i> .	108	83	J13
<b>CHAPTER 11</b>			
<b>HELMINTHS: GENERAL FEATURES</b>			
None			
<b>CHAPTER 12</b>			
<b>CESTODES: TAPEWORMS</b>			
<b>Long Essays</b>			
1. Classify platyhelminths. Enumerate the cestode parasites. Describe the morphology, life cycle, pathogenicity and laboratory diagnosis and complications of <i>Taenia solium</i> .	112, 113, 120	91, 94, 99	J14(RS3), D00, J08, J10, J13
2. Classify cestodes. Describe the life cycle, pathogenesis and laboratory diagnosis of <i>Taenia saginata</i> .	113, 122, 125	94, 99, 102	J15(RS3)

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	PNKR	BVJP	
3. Classify cestodes. Mention the general features of cestodes. Write in details about morphology, life cycle, pathogenesis and laboratory diagnosis of <i>Echinococcus granulosus</i> (hydatid disease/hydatid worm).	113, 128	94, 93, 104	J08(RS2), D08(RS2), D03, D06, D07, J11, D11, D12
<b>Short Essays</b>			
1. Differences between <i>Taenia solium</i> and <i>Taenia saginata</i> .	—	101	D16
2. General characters of cestodes.	113	93	D11(RS2)
3. <i>Taenia solium</i> (life cycle).	120	99	J09(RS2), J07
4. Life cycle of <i>Taenia saginata</i> .	122	99	D15
5. Cysticercosis (types and pathogenesis).	124	100	D16(RS3), D01
6. <i>Cysticercus cellulosae</i> (pathogenesis, clinical features and diagnosis).	124	100	J07(RS2), J10(RS2), D12(RS3), J02, D06, D09, J12, D14, J16
7. Dog tape worm.	127	104	D07(RS2)
8. Hydatid cyst.	128	105	D05, J06, J07, J14
9. Pathogenesis and laboratory diagnosis of hydatid disease ( <i>Echinococcus granulosus</i> ).	128	105	J01, D02, J03, D04, J09, J13
10. Laboratory diagnosis of echinococcosis.	131	107	D13(RS3), D16(RS3)
11. <i>Hymenolepis nana</i> .	134	108	J16(RS3), J04
<b>Short Answers</b>			
1. Differences between <i>T. solium</i> and <i>T. saginata</i> .	—	101	J05
2. Name four cestodes infecting man.	113	94	J08
3. Four salient features of cestodes.	113	93	D13
4. Draw the scolex of the "armed tapeworm".	120	99	J14
5. Scolex of <i>Taenia solium</i> .	121	99	J10
6. Egg of <i>Taenia</i> —diagram.	121	99	D07, D13
7. Draw the diagram of eggs of <i>Taenia solium</i> and <i>Hymenolepis nana</i> .	121, 135	99, 109	D99
8. <i>Cysticercus bovis</i> .	122	102	D13(RS3)
9. Cysticercosis.	124	100	J16(RS3)

Contd... —



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	PNKR	BVJP	
10. <i>Cysticercus cellulosae</i> .	124	100	J08(RS2), D11(RS2), D99, J01, D04
11. Morphology of <i>Echinococcus granulosus</i> .	127	104	J11(RS2)
12. Structure of hydatid cyst.	129	105	D12(RS3)
13. Draw a neat diagram of hydatid cyst and label the parts.	129	104	J00, D01
14. Composition of hydatid fluid.	130	106	J13
15. Brood capsule.	130	106	D09
16. Name two tests to diagnose hydatid disease.	131	107	D99
17. Casoni's test.	131	107	J12(RS2), D15(RS3), J10, J14, D15, J16
18. <i>Hymenolepis nana</i> .	134	108	J12(RS2)
19. <i>Hymenolepis nana</i> egg.	135	108	J10
20. Why is it difficult to eradicate <i>H. nana</i> infection?	135	110	J02

## CHAPTER 13

## TREMATODES: FLUKES

## Short Essays

1. Larval stages of trematodes.	140	115	J00
2. <i>Schistosoma haematobium</i> (life cycle).	141	116	J10(RS2), D11(RS2), J06
3. <i>Fasciola hepatica</i> (life cycle).	151	120	J08, D13
4. <i>Paragonimus westermani</i> (lung fluke).	157	130	D13(RS3), J15(RS3), J05

## Short Answers

1. General characters of trematodes.	139	114	D07(RS2)
2. Classify trematodes according to habitat.	139	116	J13
3. Miracidium larva.	140	115	J11(RS2), J06, D13
4. Cercariae.	140	115	D08(RS2), J05, J08, J10, J14, J16
5. Name three blood flukes.	140	116	J01, J03, D04
6. Egg of <i>Schistosoma haematobium</i> .	141	117	D12
7. Painless terminal hematuria.	143	120	D11

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	PNKR	BVJP	
8. Katayama fever.	143	120	D16
9. Liver fluke.	148	120	J16(RS3), D07
10. Name two liver flukes.	148	120	J02
11. <i>Fasciola hepatica</i> .	151	120	J00
12. Egg of <i>Fasciola hepatica</i> .	151	121	J13
13. Enumerate parasites infecting lungs.	157	116	D16(RS3)
14. <i>Paragonimus westermani</i> .	157	130	D00
15. Intermediate hosts of <i>Paragonimus westermani</i> .	158	131	D03

**CHAPTER 14****NEMATODES: GENERAL FEATURES****Short Essays**

- |                                                                          |     |          |                                         |
|--------------------------------------------------------------------------|-----|----------|-----------------------------------------|
| 1. Larval stages of nematodes (rhabditiform larva and filariform larva). | —   | 148      | J11(RS2), J05                           |
| 2. Larva migrans.                                                        | 162 | 142, 144 | J07(RS2),<br>D09(RS2), J10,<br>D10, D11 |

**Short Answers**

- |                                                         |     |          |                                         |
|---------------------------------------------------------|-----|----------|-----------------------------------------|
| 1. Define with example viviparous nematodes/parasites.  | 161 | 208      | D16                                     |
| 2. Classify intestinal nematodes.                       | 162 | 137      | J03                                     |
| 3. Enumerate tissue nematodes along with their habitat. | 162 | 137      | D13(RS3)                                |
| 4. Larva migrans.                                       | 162 | 142, 144 | D10(RS2),<br>D15(RS3), D06,<br>J07, D16 |
| 5. Cutaneous larva migrans.                             | 164 | 144      | J13(RS3), D12,<br>D15                   |
| 6. Visceral larva migrans.                              | 165 | 142      | D12(RS3)                                |

**CHAPTER 15****TRICHINELLA SPIRALIS****Short Essay**

- |                                                                    |     |     |                                 |
|--------------------------------------------------------------------|-----|-----|---------------------------------|
| 1. <i>Trichinella spiralis</i> (life cycle/ laboratory diagnosis). | 167 | 152 | D07(RS2), J06,<br>J09, D12, J16 |
|--------------------------------------------------------------------|-----|-----|---------------------------------|

**Short Answer**

- |                                                             |     |     |               |
|-------------------------------------------------------------|-----|-----|---------------|
| 1. Describe the life cycle of <i>Trichinella spiralis</i> . | 168 | 153 | D01, J02, J14 |
|-------------------------------------------------------------|-----|-----|---------------|

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PNKR BVJP

## CHAPTER 16

## TRICHURIS TRICHIURA

## Short Answers

- |                                                               |     |     |                                 |
|---------------------------------------------------------------|-----|-----|---------------------------------|
| 1. Life cycle of <i>Trichuris trichiura</i> .                 | 173 | 160 | D14(RS3),<br>J15(RS3), D00      |
| 2. Egg/ovum of <i>Trichuris trichiura</i> (whipworm)—diagram. | 173 | 160 | J10(RS2), J03,<br>D08, D14, J16 |

## CHAPTER 17

## STRONGYLOIDES STERCORALIS

## Long Essay

- |                                                                                                                                                      |                                |                                |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----|
| 1. Enumerate the parasites infecting HIV infected persons and describe the life cycle and laboratory diagnosis of <i>Strongyloides stercoralis</i> . | 518<br>(BVJM)<br>178<br>(PNKR) | 508<br>(ASTR)<br>149<br>(BVJP) | D13 |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----|

## Short Essays

- |                                                                     |     |     |                                                           |
|---------------------------------------------------------------------|-----|-----|-----------------------------------------------------------|
| 1. <i>Strongyloides stercoralis</i> (life cycle and pathogenicity). | 178 | 149 | D08(RS2),<br>J10(RS2),<br>J16(RS3), D01,<br>D02, D04, J11 |
| 2. Pathogenesis of <i>Strongyloides</i> (strongyloidosis).          | 180 | 149 | J15(RS3)                                                  |

## Short Answers

- |                                                |     |     |               |
|------------------------------------------------|-----|-----|---------------|
| 1. Larva of <i>Strongyloides stercoralis</i> . | 177 | 148 | J10           |
| 2. Larva currens.                              | 180 | 149 | J14(RS3), J08 |
| 3. Hyperinfection syndrome.                    | 180 | 151 | D09           |

## CHAPTER 18

## HOOKWORM

## Long Essay

- |                                                                                                                          |          |          |                                                 |
|--------------------------------------------------------------------------------------------------------------------------|----------|----------|-------------------------------------------------|
| 1. Classify nematodes. Describe the life cycle, pathogenicity and laboratory diagnosis of <i>Ancylostoma duodenale</i> . | 162, 184 | 137, 144 | D09(RS2),<br>D15(RS3),<br>D16(RS3), J04,<br>D16 |
|--------------------------------------------------------------------------------------------------------------------------|----------|----------|-------------------------------------------------|

## Short Essays

- |                                                                                               |     |     |                                         |
|-----------------------------------------------------------------------------------------------|-----|-----|-----------------------------------------|
| 1. Write briefly on life cycle and pathogenesis of hookworm ( <i>Ancylostoma duodenale</i> ). | 184 | 144 | D06(RS2),<br>D11(RS2),<br>J14(RS3), D99 |
| 2. Pathogenesis and clinical features of hookworm infection.                                  | 187 | 144 | D13                                     |

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Contd...

	PNKR	BVJP	
3. Pathogenicity and laboratory diagnosis of ankylostomiasis.	187	144	J01
4. Ground itch.	164	144	D05
<b>Short Answers</b>			
1. Morphology of <i>Anchylostoma</i> hookworm egg (labeled diagram).	183	143	J02, D03, J11, J12
2. Draw the diagram of eggs of <i>A. duodenale</i> and <i>H. nana</i> .	183, 135	144, 109	D00
3. Pathogenicity of hookworm.	187	144	D07
4. Causes of anemia in <i>A. duodenale</i> infestation.	186	145	D01, D02
5. Hookworm anemia (anemia due to hookworm infection).	186	145	J10, J13

## CHAPTER 19

**ENTEROBIUS VERMICULARIS****Short Essays**

1. <i>Enterobius vermicularis</i> (morphology and life cycle).	190	156	D08(RS2), J00, J02, D07, J10, J11, D11
2. Morphology of egg of <i>Enterobius vermicularis</i> .	191	157	D05
3. NIH swab.	193	158	D14

**Short Answers**

1. <i>Enterobius vermicularis</i> (life cycle).	190	156	D11(RS2), J13(RS3)
2. Egg of <i>Enterobius vermicularis</i> .	191	157	J07, D13, D15
3. Laboratory diagnosis of <i>Enterobius vermicularis</i> .	193	157	J11(RS2)
4. NIH swab.	193	158	D09(RS2), J14(RS3), J14, J15

## CHAPTER 20

**ASCARIS LUBRICOIDES****Long Essays**

1. Classify intestinal nematodes. Describe morphology, life cycle, pathogenicity and laboratory diagnosis of <i>Ascaris lumbricoides</i> infestation. Add a note on its prevention.	162, 195	137	D01, J07, J14, J15, J16
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Contd... —

Contd...

	PNKR	BVJP	
<b>Short Essays</b>			
1. Life cycle and pathogenesis of <i>Ascaris lumbricoides</i> (roundworm).	197	139	J08(RS2), D09(RS2), D10(RS2), J13(RS3), J08
2. Loeffler's syndrome.	199	141	D09
<b>Short Answers</b>			
1. Morphology of <i>Ascaris lumbricoides</i> egg.	196	138	J04
2. Decorticated egg of <i>Ascaris</i> .	196	139	J10
3. Complications of ascariasis (roundworm infestations).	199	139	D99, J03
<b>CHAPTER 21</b>			
<b>FILARIAL WORM</b>			
<b>Long Essays</b>			
1. Classify nematodes. Describe the life cycle, pathogenesis and laboratory diagnosis of <i>Wuchereria bancrofti</i> .	162, 207	137, 166	J09(RS2), D11(RS2), J01, J02, D04, D08
2. Classify filariasis. Describe pathogenesis and laboratory diagnosis of lymphatic filariasis.	205, 209	163, 168	D14(RS3)
<b>Short Essays</b>			
1. Microfilaria.	203	163	J11(RS2), J16(RS3), D03
2. Classification of microfilaria.	204	165	J12(RS2)
3. Describe the life cycle on <i>Wuchereria bancrofti</i> .	207	166	D99, D05, J07
4. Pathogenesis of lymphatic filariasis.	209	168	J13(RS3)
5. Occult filariasis.	210	168	D12, J15, J16
6. Laboratory diagnosis of lymphatic filariasis ( <i>W. bancrofti</i> ).	210	168	J15(RS3), D13, D16
7. Loa loa.	216	172	D14
8. River blindness.	217	173	D13(RS3)
<b>Short Answers</b>			
1. Microfilaria.	203	163	D15(RS3)
2. Sheathed microfilaria.	203	163	D00
3. What is nocturnal periodicity? Give one examples.	203	166	J03
4. Enumerate sheathed and unsheathed microfilariae.	204	163	D11

Contd...

Contd...

	PNKR	BVJP	
5. Occult filariasis.	210	168	J07(RS2), J12(RS2)
6. Tropical pulmonary eosinophilia.	210	168	J16(RS3)
7. Diethylcarbamazine (DEC)—hetrazan provocation test.	212	169	D12(RS3), J08, J13, J14, D14
8. Differences between (microfilaria of) <i>Wucheraria bancrofti</i> and <i>Brugia malayi</i> .	214	170	J11(RS2), J00
9. Pathogenesis of Bancroftian filariasis.	215	168	J08(RS2)
10. Name the diseases caused by <i>W. bancrofti</i> .	215	168	D10
11. Loa loa.	216	172	J05, D06
12. Pathogenicity of Loa loa.	216	172	J14
13. Acute hemorrhagic conjunctivitis—Calabar swelling.	216	172	J15(RS3)
14. Calabar swelling.	216	172	J10(RS2)
15. Subcutaneous nodules in <i>Onchocerca volvulus</i> .	217	173	J13

**CHAPTER 22****DRACUNCULUS MEDINENSIS****Long Essay**

- |                                                                                                                                                                     |          |          |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------------|
| 1. Name the tissue nematodes. Describe morphology, life cycle, pathogenesis, laboratory diagnosis and prophylactic measures against <i>Dracunculus medinensis</i> . | 162, 221 | 137, 175 | J11(RS2), D02, J09 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------------|

**Short Essays**

- |                                                                                                                        |     |     |          |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|
| 1. Describe life cycle of <i>Dracunculus medinensis</i> (guinea worm) and add a note on prophylaxis of dracunculiasis. | 221 | 175 | D00      |
| 2. Pathogenesis of <i>Dracunculus medinensis</i> .                                                                     | 223 | 177 | J10      |
| 3. Guinea worm disease.                                                                                                | 223 | 177 | D14(RS3) |

**Short Answers**

- |                                                                     |     |     |     |
|---------------------------------------------------------------------|-----|-----|-----|
| 1. Name the parasite which comes out of skin on contact with water. | 220 | 175 | J12 |
| 2. Life cycle of <i>Dracunculus medinensis</i> .                    | 221 | 175 | D99 |

Contd... —

Contd...

PNKR BVJP

## CHAPTER 23

## MISCELLANEOUS NEMATODES

None

## CHAPTER 24

## DIAGNOSTIC METHODS IN PARASITOLOGY

## Short Essays

- |                                                                                                 |         |          |                                                                   |
|-------------------------------------------------------------------------------------------------|---------|----------|-------------------------------------------------------------------|
| 1. Enumerate protozoan parasites that cause diarrhea. Add a note on their laboratory diagnosis. | 32, 229 | 211, 183 | D99                                                               |
| 2. Stool examination for parasites.                                                             | 229     | 183      | D14(RS3)                                                          |
| 3. Stool concentration technique in diagnostic parasitology for ova/cysts.                      | 232     | 184      | J09(RS2),<br>D09(RS2),<br>D10(RS2),<br>D11(RS2), J08,<br>J12, D15 |
| 4. Parasites seen in the peripheral blood smear.                                                | 237     | 186      | D00                                                               |

## Short Answers

- |                                                                                    |     |     |                       |
|------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Differences between sedimentation and floatation method of stool concentration. | —   | —   | D12                   |
| 2. Significance of examination of an iodine mount of a stool sample.               | 230 | 184 | D02                   |
| 3. Significance of saline and iodine preparation for stool examination.            | 230 | 184 | J03                   |
| 4. Modified acid fast staining in parasitology.                                    | 231 | —   | D16                   |
| 5. Concentration techniques for stool.                                             | 232 | 184 | D09                   |
| 6. Mention two concentration methods for stool examination for parasites.          | 232 | 184 | J02                   |
| 7. Saturated salt floatation technique.                                            | 232 | 185 | J11(RS2),<br>D06(RS2) |
| 8. Baerman's technique.                                                            | 233 | —   | D13                   |
| 9. Stoll's method for worm burden.                                                 | 234 | 186 | J12(RS2)              |
| 10. Use of peripheral smears in parasitology.                                      | 235 | 186 | J15(RS3)              |
| 11. Purpose of thick and thin blood smear.                                         | 235 | 186 | J00                   |
| 12. Significance of thick and thin blood smears in malaria.                        | 235 | 186 | J02                   |
| 13. Enumerate parasites detected in peripheral smear.                              | 237 | 186 | D14(RS3), J16         |

Contd... —

Contd...

	PNKR	BVJP	
14. Novy-Mac Neal-Nicolle (NNN) medium.	240	—	J14
15. Xenodiagnosis for parasites.	241	189	D14(RS3), D11, J13, D14

**MISCELLANEOUS****Short Essay**

- |             |   |     |     |
|-------------|---|-----|-----|
| 1. Cyclops. | — | 204 | J09 |
|-------------|---|-----|-----|

**Short Answers**

- |                                                                                               |         |     |                                                      |
|-----------------------------------------------------------------------------------------------|---------|-----|------------------------------------------------------|
| 1. Enumerate parasites causing diarrhea.                                                      | 32, 147 | 8   | J16(RS3)                                             |
| 2. Name four parasites infecting CNS.                                                         | 227     | 210 | D11, D12                                             |
| 3. Name bile stained helminthic eggs seen in stool.                                           | 197     | 215 | D10                                                  |
| 4. Name two parasites demonstrable in bone marrow aspiration.                                 | —       | —   | D02                                                  |
| 5. Which parasites cause pruritis ani, rectal prolapse, hanging groins and pernicious anemia? | —       | —   | D99                                                  |
| 6. Name two nematode eggs which are not bile stained.                                         | —       | —   | D03                                                  |
| 7. Cyclops.                                                                                   | —       | 204 | J13(RS3), J04,<br>J05, J07                           |
| 8. Enumerate parasites causing anemia and the type of anemia.                                 | —       | —   | D08(RS2),<br>J10(RS2), J06,<br>J08, D09, J11,<br>J14 |
| 9. Two examples of parasites affecting the eye.                                               | —       | —   | D05                                                  |
| 10. Name all the parasites infecting the liver.                                               | —       | 210 | J06                                                  |
| 11. Name six protozoa cysts found in stool.                                                   | —       | 214 | D06(RS2)                                             |
| 12. Name the helminthic infections transmitted through snail.                                 | —       | —   | D08                                                  |
| 13. Nonbile-stained egg—diagram.                                                              | —       | —   | J09                                                  |
| 14. Parasites in reticuloendothelial system.                                                  | —       | 210 | J10                                                  |
| 15. Name four parasitic infection in which man is the dead end of the life cycle.             | —       | —   | J09                                                  |



3

# Pharmacology

**REFERENCES**

1. KD Tripathi (**KDTPT**): Essentials of Medical Pharmacology (7th Edition), Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, Rs. 995/-
2. HL Sharma, KK Sharma (**SHRM**): Principles of Pharmacology (2nd Edition), Paras Medical Publisher, Hyderabad; Rs. 795/-

**COURSE CONTENTS****THEORY****I. General Pharmacology***Must Know*

- Definition and scope of pharmacology and its different branches; routes of administration of drugs; advantages and disadvantages of different routes.
- General principles of drug action.
- Basic principles of pharmacokinetics and its relevance to rational therapeutics.
- Biotransformation of drugs and factors affecting it.
- Basic mechanisms of drug interactions.
- Various types of adverse effects that can occur with therapeutic use of drugs. Concept of therapeutic index and margin of safety.
- Mechanism of drug action; factors modifying drug action and dosage including dose response relationship.
- Drugs and drug combinations that are banned in India.
- Bioavailability and bioequivalence of drugs.
- Clinical pharmacology: Definition, purpose and scope.

*Desirable to Know*

- Molecular mechanisms of drug action.
- Modern drug delivery systems and principles underlying them.

**II. Autonomic Nervous System***Must Know*

- General principles of autonomic neurotransmission with reference to cholinergic and adrenergic systems; Various types and subtypes of receptors and their agonists and antagonists.
- Therapeutic indication, common side effects and contraindications of cholinomimetics (including anticholinesterases) and cholinergic blocking (antimuscarinic) drugs. Steps in the pharmacotherapy of organophosphorus and atropine poisonings, pharmacotherapy of glaucoma and myasthenia gravis.
- Therapeutic indications, common side effects and contraindications of alpha-1, alpha-2, beta-1 and beta-2 selective and nonselective adrenoreceptor agonist and antagonists.
- Skeletal muscle relaxants: Names, pharmacological actions, side effects.
- Drugs used in parkinsonism.

*Desirable to Know*

- Molecular and biochemical mechanisms of action of cholinergic drugs. Adrenergic drugs and their blockers.

**III. Cardiovascular System***Must Know*

- a. Pharmacological actions of cardiac glycosides and the basis of their use in congestive heart failure (CHF) and arrhythmias.
- b. Pharmacokinetics, drug interactions, adverse effects and contraindications of digoxin, treatment of digoxin toxicity.
- c. Approaches to the treatment of CHF and the status of diuretics, digitalis and vasodilators in its management.
- a. Classification of antihypertensive drugs. Mechanism of action, adverse effects, drug interactions and basis of combining commonly used agents like beta-blockers, diuretics, angiotensin-converting enzyme (ACE) inhibitors, calcium channel blockers, clonidine.
- b. Management of hypertensive emergencies.
- Classification of drugs used in angina pectoris. Nitrates—pharmacological actions, mechanisms of beneficial effect in angina, adverse effects and phenomenon of nitrate tolerance.
- Calcium channel blockers: Pharmacological actions, adverse effects and indications.
- Approaches to the treatment of myocardial infarction.
- Drug treatment of shock and peripheral vascular diseases.

**IV. Diuretics***Must Know*

- Classification of diuretics: Site of action of diuretics of different classes and the pattern of electrolyte excretion under their influence.
- Short-term side effects and long-term complications of diuretic therapy.
- Therapeutic uses diuretics.

*Desirable to Know*

- Antidiuretics
- Diabetes insipidus.

**V. Drugs Affecting Blood and Blood Formation***Must Know*

- Antianemic drugs.
  - Mechanisms of iron absorption from gastrointestinal tract and factors modifying it. Bioavailability, adverse effects and indications of oral and parenteral iron preparations. Treatment of iron deficiency anemia.
  - Indications of folic acid, vitamin B<sub>12</sub>, vitamin K.
- Classification of anticoagulants. Mechanisms of action of heparin and oral anticoagulants. Drug interactions with oral anticoagulants and treatment of bleeding due to their overdose.
- Drugs inhibiting platelet aggregations, their indications and precautions in their use.
- Properties and indications of plasma expanders.

*Desirable to Know*

- Disadvantages of 'shotgun' antianemia preparations.

- Name and indications of fibrinolytics and antifibrinolytics.
- Hypolipoproteinemic drugs: Mechanisms of action, adverse effects and indications.

#### VI. Autacoids and Related Drugs

##### *Must Know*

- Definitions of autacoids and their difference from hormones.
- Pharmacological actions of the autacoids and their pathophysiological roles.
- The subtypes of histamine receptors and the actions mediated through each.
- Histamine H<sub>1</sub> receptor antagonists: Classification, pharmacological actions, adverse effects and therapeutic uses.
- Angiotensin-converting enzyme inhibitors: Pharmacological actions, pharmacokinetics, adverse effects, drug interactions and therapeutic uses.
- Established and potential therapeutic uses of prostaglandins and their analogs.
- Eicosanoids and platelet-activating factor.
- Analgesics, antipyretics and anti-inflammatory drugs.
- Drugs used for rheumatoid arthritis and gout.

##### *Desirable to Know*

- Drugs which release histamine in the body clinical implications of this property.
- The subtypes of 5-hydroxytryptamine (5-HT) receptors and drugs which act by modifying the serotonergic system.
- Antioxidants.

#### VII. Respiratory System

##### *Must Know*

- Drugs used in management of asthma, common side effects and precautions to be taken during their use. Principles governing the selection of drugs for asthma.

##### *Desirable to Know*

- Classification of antitussives based on their mechanism of action, pharmacological action, indications, contraindications and common side effects of antitussives.
- Expectorants and mucolytic agents: Outline of their mechanisms of action, indications, common side effects and precautions to be taken during their use. Principles of choosing appropriate combination of cough remedies.

#### VIII. Gastrointestinal Tract

##### *Must Know*

- Drugs for peptic ulcer
  - Drugs used in the treatment of peptic ulcer and outline of pharmacological basis of the use each.

- Side effects, contraindications and precautions for the use of the various drugs used in peptic ulcer.
- Antiemetic drugs and outline of their mechanism of action.
- Drugs used in diarrhea.
  - Symptomatic management of diarrhea giving the pharmacological basis for the use of each drug/measure.
  - Oral rehydration powder.
  - Indications for the use of antimicrobials, antimotility agents and antisecretory drugs.
  - Indications, limitations and hazards of purgatives.

*Desirable to Know*

- Drugs used in therapy of ulcerative colitis outlining the pharmacological basis for the use. Side effects, contraindications and precautions during use of these agents.

#### **IX. Endocrine Pharmacology**

*Must Know*

- Hormones of thyroid—physiological and pharmacological actions, indications, contraindications and common side effects of thyroid hormones used for replacement and for pharmacotherapy. Antithyroid drugs—pharmacological actions, adverse effects.
- Hormones of the islets of Langerhans: Drugs used for pharmacotherapy of diabetes mellitus, their contraindications, precautions precluding their use and common side effects. Management of iatrogenic hypoglycemia and diabetic ketoacidosis.
- Sex hormones: Synthetic analogs and antagonists, uses in replacement and pharmacotherapy outlining the rationale for such use, contraindications and common side effects.
- Pharmacological approaches to contraception, side effects, precautions during use and contraindications for the various modalities of drug-induced contraception.
- Uterine stimulants and relaxants: Their indications, contraindications and important side effects.
- Hormones of adrenal cortex and their synthetic analogs: Pharmacological actions, therapeutic uses, contraindications, precautions during their use and common side effects. General principles governing the pharmacotherapy with glucocorticoids.

*Desirable to Know*

- Hormones and drugs affecting calcium metabolism, their therapeutic indications, contraindications and common side effects.
- Importance of drug-induced alterations in prolactin levels.
- Pharmacology of anterior pituitary hormones.

#### **X. Central Nervous System**

*Must Know*

- Drugs used in epilepsy: Selection of appropriate drug for the various types of epilepsy and adverse effects of the drugs.

- Hypnotics used currently in clinical practice with indications, contraindications, adverse effects and drug interactions of benzodiazepines.
- Opioid analgesics: Pharmacological actions, indications, contraindications and adverse effects of commonly used analgesics.
- Aspirin like nonsteroidal anti-inflammatory drugs (NSAIDs), their relative advantages and disadvantages, indications, adverse effects and drug interactions.
- Agents used in treatment of acute and chronic gout.
- Role of disease modifying agents in the treatments of rheumatoid arthritis.
- Pharmacological effects of ethanol in methanol poisoning.

#### XI. Psychopharmacology

##### *Must Know*

- Drugs used for psychosis, anxiety, depression and manic depressive illness.

##### *Desirable to Know*

- Names of hallucinogens: Actions and abuse potential of *Cannabis indica*, cocaine and opioids.

#### XII. Drugs in Anesthetic Practice

##### *Must Know*

- General anesthetics
  - Cardinal features of general anesthesia.
  - Merits and demerits of commonly used anesthetic agents.
  - Properties of thiopentone sodium as an inducing agent and basis of its short duration of action.
  - Complications of general anesthesia and drug interactions with general anesthetics.
- Preanesthetic adjuvants: Names of drugs used in preanesthetic medication and the purpose of using each of them.
- Local anesthetics:
  - The pharmacological basis of local anesthetic action and of combination of local anesthetic agents with adrenaline.
  - Common adverse effects of local anesthetics.
  - Indications for the complications of spinal anesthesia.

##### *Desirable to Know*

- Other anesthetics like ketamine and neuroleptic analgesia.
- The pharmacology of dantrolene and centrally acting muscle relaxants like diazepam, carisoprodol and baclofen.

#### XIII. Chemotherapy

##### *Must Know*

- General principles of chemotherapy, indications for prophylactic and combined use of chemotherapeutic agents. Chemotherapeutic agents in the order of their choice for various infections and infestations, common side effects, contraindications and precautions.

- Antiseptics and disinfectants and their uses based on their pharmacological properties.
- Anticancer drugs: Mechanisms of action, use, common side effects, contraindication and precautions during use of various anticancer drugs.
- Chemotherapy of drugs used in tuberculosis, leprosy, malaria, filarial, amoebiasis, kala-azar, enteric fever, worm infestation.
- Antifungal agents.
- Chemotherapy of viral infections including possible approaches to treatment of viral infections like acquired immunodeficiency syndrome (AIDS).

*Desirable to Know*

- Methods to circumvent toxic/side effects of chemotherapeutic agents wherever possible.
- Chemotherapeutic agents in fungal infections: Superficial and systemic.

#### XIV. Toxicology

*Must Know*

- General principles of treatment of poisoning.

*Desirable to Know*

- Heavy metal toxicity and heavy metal antagonists.
- Management of overdosage with commonly used therapeutic agents.

#### XV. Clinical Pharmacology and Rational Drug Use

*Must Know*

- Principles of prescription writing.
- Prescriptions of common disorders.
- Essential drug concepts.
- Drugs in children and pregnancy (perinatal pharmacology)
- Drugs in geriatrics.
- Drugs-drug interactions (with specific examples).
- Drug resistance.
- Adverse drug reaction (ADR) monitoring and reporting.

*Desirable to Know*

- Therapeutic drug monitoring.
- Clinical use of drugs in hepatic and renal failure.

#### XVI. Biomedical Waste: Types, Potential Risks and their Safe Management

##### SKILLS

- Plan and institute a line of treatment, which is need based, cost-effective and appropriate for common ailments taking into consideration.
  - Patient
  - Disease
  - Socioeconomic status
  - Institutional/governmental guideline.
- Identify irrational prescriptions and explain their irrationality.



- Persuade patients to stick to therapeutic recommendations especially with reference to dosage and duration of therapy and monitor compliance.
- Warn patients about important side effects of drugs without alarming them.
- Recognize drug-induced untowards effects and take appropriate steps to all of them.

### **PRACTICAL**

#### **I. Practical Pharmacy**

- Preparations of mixtures, percentage solutions, ointments, paints, paste, powders, liniments, etc.
- Identification, handling and explaining the use of various dosage forms to the patient.
- Interpretation of labels of commercial preparations.

#### **II. Experimental Pharmacology**

- Frog heart preparation to show effect of autonomic drugs on ions.
- Frog rectus preparation to show neuromuscular drugs action.
- Mammalian smooth muscle (rabbit, guinea pig, rat, etc.) to show drugs effects and drug antagonism.
- Mydriatic and miotic effects on rabbit pupil.
- Drug action on ciliary movements of frog esophagus.
- Anesthesia: Frog plexus, surface anesthesia in rabbits, infiltration in guinea pig.
- Demonstration of animal experiments using computer-aided demonstrations, for example: Effects of drugs on rabbit eye, induction of catalepsy in rat/mice, sleeping time in mice, effects of drugs on spontaneous motor activity and exploratory behavior, skeletal muscle relaxants, effects of analgesics.

#### **III. Clinical Pharmacology**

- Clinical problem-solving exercises oriented towards drug interactions, rational drug therapy, etc.
- Prescription writing for common clinical conditions.
- Criticize, correct and rewrite the given prescription (therapeutic and drug interactions oriented).
- Case studies to study rational therapeutics.
- Analysis of rationality of fixed dose combinations.
- Critical evaluation of promotional drug literature.
- Getting conversant with source of drug information.
- Cost comparison of branded preparations.

**UNIVERSITY EXAMINATION PATTERN****Eligibility for Writing the University Examination**

The candidate should have at least 35% aggregate in the two of the three internals conducted by the college and should also have minimum 75% attendance in Theory and Practical classes conducted.

**Criteria for Passing the University Examination**

The candidate should secure minimum 50% in the university theory examination (University theory + Viva voce) and the university practical examinations separately. Internal assessment marks would not be considered for passing criteria, however, they would be added to final marks to determine class of passing.

**Distribution of Marks**

	Internal Assessment		University Examination	
	Maximum marks	Minimum marks to qualify	Maximum marks	Minimum marks to pass
Theory examination	40 marks	14 marks	200 marks	120 marks
Viva voce	—	—	40 marks	
Practical examination	40 marks	14 marks	80 marks	40 marks

**Theory Examination**

There shall be two theory paper carrying 100 marks each. The pattern of questions would be of three types.

2 Long Essay Questions	2 × 10 marks	20 marks
10 Short Essay Questions	10 × 5 marks	50 marks
16 Short Answer Questions	10 × 3 marks	30 marks
<b>Total</b>		<b>100 marks</b>

*Distribution of Chapters in Paper I and II for University Examination with Weightage of Marks*

Paper I		
1.	General pharmacology	10 marks
2.	Central nervous system and local anesthetics	25 marks
3.	Autonomic nervous system including parkinsonism, skeletal muscle relaxants	25 marks
4.	Cardiovascular system	20 marks
5.	Blood and pharmacotherapy of shock	10 marks
6.	Diuretics and antidiuretics	10 marks
	<b>Total</b>	<b>100 marks</b>

Paper II		
1.	Chemotherapy	40 marks
2.	Endocrines (hormones)	20 marks
3.	Gastrointestinal system	10 marks
4.	Antacids	10 marks
5.	Respiratory system	10 marks
6.	Chelating agents	
7.	Immunosuppressives	
8.	Drugs used in gout and rheumatoid arthritis	
9.	Vitamins	
10.	Enzymes in therapy	10 marks
11.	Drugs acting on uterus	
12.	Antiseptic and disinfectants	
Total		100 marks

Topics assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of topics is inevitable and students are advised to be prepared to answer overlapping topics.

#### Practical Examination

Practical examination consists of two exercises of 2 hours duration and 40 marks each.

*Distribution of Practical in Exercise I and II for University Examination with Marks*

	Marks
<b>Exercise I</b>	
a. Spotters	10 marks
b. Prescriptions (2)	10 marks
c. Practical pharmacy exercise	
i. Viva on dosage form and commercial labels	10 marks
ii. Preparations of dilutions	10 marks
<b>Exercise II</b>	
a. Experimental pharmacology or following in place of animal experiments	
i. Criticism of fixed dose combination	10 marks
ii. Criticism of commercial preparation	10 marks
b. Interpretation of graph	10 marks
c. Clinical pharmacology problem	
i. Therapeutic problem	05 marks
ii. Criticism and rewriting prescription	05 marks

**Viva Voce Examination**

The viva voce examination shall carry 40 marks and all the examiners will conduct the viva examination separately for each candidate.

*Distribution of Marks for Viva Voce Examination*

Topics	Marks
General pharmacology, CNS, local anesthetics, biogenic amines and polypeptides, gout and rheumatoid arthritis	10 marks
Autonomic nervous system (ANS), parkinsonism, cardiovascular system (CVS), blood and blood-forming organs, hypolipidemic agents, diuretics	10 marks
Endocrines, gastrointestinal tract (GIT), uterus, respiratory system	10 marks
Chemotherapy, antiseptics and disinfectants, chelating agents, vitamins, immunopharmacology	10 marks

## Question Bank

KDTPT SHRM

## Section I: General Pharmacological Principles

## CHAPTER 1

## INTRODUCTION AND ROUTES OF DRUG ADMINISTRATION

## Long Essays

- |                                                                                                                                                          |      |        |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|-----|
| 1. Enumerate various routes of drug administration with suitable examples. Mention the advantages and disadvantages of oral route.                       | 5, 6 | 15     | J12 |
| 2. Mention the various routes of administration of drugs with examples for each. Discuss the merits and demerits of intravenous route of administration. | 5, 9 | 15, 16 | D11 |

## Short Essays

- |                                                                                    |   |    |                                             |
|------------------------------------------------------------------------------------|---|----|---------------------------------------------|
| 1. Compliance.                                                                     | — | —  | D06                                         |
| 2. Local and systemic routes of drug administration.                               | 5 | 15 | J10(RS2)                                    |
| 3. Merits and demerits of oral route of drug administration.                       | 6 | 15 | J10, D12                                    |
| 4. Sublingual route of drug administration with advantages and disadvantages.      | 6 | 15 | J15(RS3), D99, D03                          |
| 5. Newer drug delivery system.                                                     | 6 | 12 | D10(RS2), J01, D04, D05, J07                |
| 6. Transdermal drug delivery system with four examples.                            | 6 | 18 | D12(RS3), D01                               |
| 7. Transdermal patch.                                                              | 6 | 18 | D14                                         |
| 8. Inhalation as a route of drug administration with advantages and disadvantages. | 8 | 18 | D00                                         |
| 9. Parenteral routes of administration of drugs.                                   | 8 | 16 | D09(RS2)                                    |
| 10. Intravenous route of drug administration (advantages and disadvantages).       | 9 | 16 | J09(RS2), D14(RS3), D16(RS3), J02, J13, D16 |

## Short Answers

- |                                                   |   |     |               |
|---------------------------------------------------|---|-----|---------------|
| 1. Define chemoprophylaxis. Give one/two example. | — | 810 | J08, D14, D16 |
| 2. Define pharmacopoeia.                          | — | 4   | D03, J05      |
| 3. Polypeptide drugs are ineffective by mouth.    | — | 14  | J02           |

Contd. ...

Contd...

	KOTPT	SHRM	
4. Orphan drugs—define and give examples.	5	103	D06(RS2), J10, D11
5. Advantages and disadvantages of oral route of drug administration.	6	15	D05
6. Mention advantages and disadvantages of sublingual route of drug administration.	6	15	D06(RS2), D01, D04
7. What are advantages and disadvantages of rectal route of drug administration?	6	16	J14(RS3)
8. Drugs used by inhalation.	8	18	D99
9. Four new drug delivery systems.	6	12	J09
10. Subcutaneous route is not preferred in the presence of shock.	8	17	D01, D04
11. Write the advantages and disadvantages of intravenous route of drug administration.	9	16	D13(RS3), D15

**CHAPTER 2****PHARMACOKINETICS: MEMBRANE TRANSPORT, ABSORPTION AND DISTRIBUTION OF DRUGS****Long Essays**

1. Define pharmacokinetics. Enumerate the factors influencing distribution of drug in the body and state how they influence distribution.	10, 17	2, 31	J04
2. Define pharmacokinetics. Describe factors affecting the absorption of drugs in the body.	10, 14	2, 25	J11, J15
3. Define bioavailability of a drug. Describe the factors affecting bioavailability of a drug giving suitable examples.	16	27	J08(RS2), J16(RS3), D16(RS3), J10, D13, J16
4. Define the terms bioavailability of drugs. Describe the factors influencing the drug absorption and bioavailability by oral route. Name four drugs which are subjected to first pass metabolism.	16, 14, 27	27, 29, 37	D01, J03

**Short Essays**

1. Factors affecting oral absorption of drugs.	14	25	J13(RS3)
2. Bioavailability of drugs and its clinical significance.	16	27, 29	D08(RS2), J09(RS2), D15
3. Volume of distribution of drugs.	17	35	J06
4. Placental barrier	—	33	D10

Contd... —

Contd...

	KDTP	SHRM	
5. Explain plasma protein binding of drugs with suitable examples. Give its clinical importance.	19	34	D06(RS2), J14(RS3), J07, D12

**Short Answers**

1. Define bioavailability.	16	27	D11
2. Two factors that control the free fraction of drug in plasma.	18	34	D99
3. Redistribution of drugs.	18	36	J11(RS2), J13
4. Name two drugs which does not cross blood-brain barriers.	19	32	D00

**CHAPTER 3****PHARMACOKINETICS: METABOLISM AND EXCRETION OF DRUGS, KINETICS OF ELIMINATION****Long Essays**

1. Define the term drug biotransformation. Discuss the different types of biotransformation with suitable examples. Name four drugs producing microsomal enzyme induction.	22, 26	36	D15(RS3)
2. Define biotransformation. Enumerate and discuss the factors affecting it.	22	36	D10(RS2)
3. Discuss the methods of prolongation of action of drugs with suitable examples.	34	26	J08

**Short Essays**

1. Biotransformation.	22	36	D09(RS2)
2. Prodrugs.	22	13	J00, J06
3. Nonsynthetic reactions (phase II reactions).	22	41	D09
4. Factors modifying biotransformation of a drug.	25	43	J14(RS3)
5. Microsomal enzyme induction and its clinical significance.	26	42	J10(RS2), J12(RS2), J09, J13
6. First pass metabolism and its pharmacokinetic implications.	27	37	J02
7. Plasma half life.	31	48	D10(RS2), J11
8. Methods to prolong drug action.	34	26	D13(RS3), D14(RS3)

**Short Answers**

1. Explain briefly the enterohepatic circulation with a suitable example.	—	47	D09
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	KDTP	SHRM	
2. Biotransformation.	22	36	J09(RS2)
3. Prodrug and two examples.	22	13	D09(RS2), J10(RS2), D12(RS3), J13(RS3), D07, J08, D09, D14
4. Two factors influencing biotransformation of drugs.	25	43	J00
5. Hoffman's elimination.	25	39	J11(RS2)
6. Enzyme induction.	26	42	D07(RS2)
7. First pass metabolism.	27	37	D08(RS2), D11(RS2), J13, J14
8. Name two drugs with high first pass metabolism.	27	37	D14
9. What is first pass metabolism? How does it affect bioavailability of a drug?	27	37	J15(RS3)
10. Presystemic elimination.	27	37	J12
11. Name two drugs excreted through feces.	27	47	D09
12. Name two drugs excreted in saliva.	28	48	D99
13. First order and zero order kinetics of drug elimination.	30	48	D11(RS2)
14. What is zero order kinetics? Give two examples.	31	51	D10(RS2), D07, D08, J14
15. Plasma half-life.	31	48	D09(RS2), D14
16. What is elimination half-life? Give examples of two drugs having short half-life.	31	48	J16(RS3)
17. Mention the drugs that require therapeutic drug monitoring.	34	—	J16

**CHAPTER 4****PHARMACODYNAMICS: MECHANISM OF DRUG ACTION, RECEPTOR PHARMACOLOGY****Short Essays**

1. Define the term 'therapeutic index'. State its relevance in drug therapy. Name two drugs with a low therapeutic index. What special measure do you undertake during their use?	55	80	J07(RS2)
2. Pharmacodynamic drug interactions.	56	86	J08(RS2)

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	KDTP	SHRM	
3. Drug synergism.	57	87	D99, J01, D04
4. Drug antagonism—define, mention the types and mechanism with examples.	57	88	D06(RS2), D12(RS3), J13(RS3), J15(RS3), J00
5. Competitive antagonism.	58	88	D08, J15
<b>Short Answers</b>			
1. Define pharmacodynamics.	37	56	D09
2. Therapeutic index.	55	80	D10(RS2), D11, J12
3. Drug synergism.	57	87	D08(RS2), D11(RS2), D15
4. Drug antagonism.	57	88	J09(RS2)
5. Physiological antagonism.	58	88	J14

**CHAPTER 5****ASPECTS OF PHARMACOLOGY, CLINICAL PHARMACOLOGY AND DRUG DEVELOPMENT****Long Essays**

- |                                                                         |        |        |                                         |
|-------------------------------------------------------------------------|--------|--------|-----------------------------------------|
| 1. Define pharmacodynamics. Describe the factors modifying drug action. | 37, 62 | 56, 81 | J14, D16                                |
| 2. Describe the factors modifying drug dose and effects.                | 62     | 81     | D07(RS2),<br>J11(RS2),<br>J12(RS2), D02 |

**Short Essays**

- |                                                                 |    |    |                            |
|-----------------------------------------------------------------|----|----|----------------------------|
| 1. Factors modifying drug action.                               | 62 | 81 | J10(RS2), D07              |
| 2. Genetic factors influencing drug metabolism.                 | 65 | 43 | D01                        |
| 3. Pharmacogenetics with examples and therapeutic implications. | 65 | 83 | J05, D08                   |
| 4. Drug tolerance.                                              | 70 | 84 | D14(RS3),<br>D15(RS3), D00 |
| 5. Tachyphylaxis with examples and therapeutic implications.    | 70 | 85 | J05                        |

**Short Answers**

- |                                                                                    |    |    |                                                 |
|------------------------------------------------------------------------------------|----|----|-------------------------------------------------|
| 1. Define pharmacogenetics and give three examples.                                | 65 | 83 | J07(RS2),<br>J08(RS2),<br>J13(RS3), J04,<br>D08 |
| 2. Explain by giving two examples how genetic factors can modify effect of a drug. | 65 | 43 | J15(RS3)                                        |

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	KOTPT	SHRM	
3. What is placebo? Write its uses.	67	68	J10, J15, J16
4. Define tachyphylaxis and give two examples.	70	85	D12(RS3), D03, J09, D09, D10, D13, D16

**CHAPTER 6****ADVERSE DRUG EFFECTS****Short Essays**

1. Post-marketing surveillance.	83	102	D10(RS2)
2. Drug dependence.	87	509	D09(RS2), D11(RS2)

**Short Answers**

1. Mention the drugs producing discoloration of urine.	—	—	J10, J14
2. Identify two drugs producing nephrotoxicity.	—	74	D08
3. Name two drugs producing hepatotoxicity.	—	74	D09
4. What are the differences between 'type A' and 'type B' of adverse drug reactions?	82	69	J14(RS3)
5. What is "post-marketing surveillance"?	83	102	J09
6. Anaphylaxis (anaphylactic shock).	86	70	D10(RS2), J12
7. Drug treatment of anaphylactic shock.	87	169	D15
8. State the basis for use of adrenaline in anaphylactic shock. What is its route of administration?	87	169	J07(RS2)
9. Adrenaline is the drug of choice in anaphylactic shock—give reason.	87	169	J01, D01, D02, D04, D13, D14, D16
10. Noradrenaline is not life saving as adrenaline in anaphylactic shock.	87	169	D06
11. Name two drugs producing hypersensitivity reaction.	87	71	J10, J14
12. Drug dependence with examples.	87	509	D05, J15
13. Explain teratogenicity.	89	73	J13
14. Identify two teratogenic drugs.	89	97	D10
15. Iatrogenic disease.	91	73	J09, D13

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KDTPT SHRM

## Section II: Drugs Acting on Autonomic Nervous System

## CHAPTER 7

## CHOLINERGIC SYSTEM AND DRUGS

## Long Essay

- |                                                                                                                                   |          |                  |          |
|-----------------------------------------------------------------------------------------------------------------------------------|----------|------------------|----------|
| 1. Classify anticholinesterases.<br>Discuss the mechanism of action<br>and therapeutic uses of reversible<br>anticholinesterases. | 105, 108 | 133,<br>134, 135 | J10, D14 |
|-----------------------------------------------------------------------------------------------------------------------------------|----------|------------------|----------|

## Short Essays

- |                                                                                           |          |     |                                              |
|-------------------------------------------------------------------------------------------|----------|-----|----------------------------------------------|
| 1. Reversible anticholinesterases.                                                        | 105      | 134 | J12(RS2)                                     |
| 2. Mechanism of action of neostigmine<br>and its indications.                             | 105      | 134 | D08(RS2)                                     |
| 3. Neostigmine.                                                                           | 107      | 136 | J14(RS3), D13                                |
| 4. Therapeutic uses of anticholinesterase<br>agents.                                      | 108      | 136 | D15(RS3), D01                                |
| 5. Pharmacotherapy of myasthenia gravis.                                                  | 109      | 139 | J04, D09, D15                                |
| 6. Organophosphorus poisoning.                                                            | 110      | 140 | J12, D12                                     |
| 7. Mention organophosphorus<br>compounds. How do you treat<br>organophosphorus poisoning? | 105, 111 | 140 | D06(RS2), D00,<br>D03, D04, D08,<br>J09, J16 |

## Short Answers

- |                                                                                               |     |     |                       |
|-----------------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Main sites for acetylcholine (ACh) release.                                                | 100 | 128 | D99                   |
| 2. Rationale of using cholinergic drugs in<br>urinary retention.                              | 104 | 132 | D05                   |
| 3. Specify two side effects of pilocarpine.                                                   | 104 | 134 | D09                   |
| 4. Mention four differences between<br>physostigmine and neostigmine.                         | 108 | —   | J04, J13              |
| 5. State the basis for the use of<br>pilocarpine in glaucoma. Mention two<br>adverse effects. | 108 | 134 | D06(RS2),<br>D09(RS2) |
| 6. Mention six uses of reversible anti-<br>cholinesterase drugs.                              | 108 | 136 | D16(RS3)              |
| 7. Specify two uses of physostigmine.                                                         | 108 | 135 | D10                   |
| 8. Mention three therapeutic uses of<br>neostigmine.                                          | 108 | 136 | J15(RS3)              |
| 9. Drugs used in myasthenia gravis.                                                           | 109 | 139 | D10, J14, J15         |
| 10. Neostigmine is preferred to<br>physostigmine in myasthenia gravis.                        | 109 | 139 | J08, D12              |
| 11. What is cholinergic crisis?                                                               | 110 | 139 | D00, J15              |

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	KDPT	SHRM	
12. Edrophonium is used for the diagnosis of myasthenia gravis.	110	139	J06
13. Edrophonium is used to distinguish between cholinergic crisis and myasthenia crisis.	110	139	D02
14. Drug therapy of organophosphorus poisoning.	111	142	D12(RS3), J13(RS3)
15. Drug of choice and its route of administration in organophosphorus poisoning.	111	142	D16
16. Rationale for using atropine in organophosphorus poisoning.	111	142	D02, J08
17. Pralidoxime.	111	142	J13
18. Mechanism of action of cholinesterase reactivators.	111	142	D07
19. Role of oximes in treatment of organophosphorus poisoning.	111	142	D09(RS2), D05, D11
20. Pralidoxime is used in organophosphorus poisoning.	111	142	J14(RS3), J03, D14

**CHAPTER 8****ANTICHOLINERGIC DRUGS AND DRUGS ACTING ON AUTONOMIC GANGLIA****Long Essay**

- |                                                                                                                                                                                                                                                                                             |     |     |                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------|
| 1. Classify anticholinergic drugs (muscarinic receptor antagonists) with examples for each group. Describe mechanism of action, pharmacological actions, therapeutic uses and adverse effects and contraindications of atropine and atropine substitutes (muscarinic receptor antagonists). | 113 | 145 | D06(RS2), D09(RS2), J15(RS3), D16(RS3), D03, J07, D08, J11, J12, J14, D16 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------|

**Short Essays**

- |                                                                                                      |     |     |                         |
|------------------------------------------------------------------------------------------------------|-----|-----|-------------------------|
| 1. Atropine substitutes.                                                                             | 116 | 145 | D11(RS2), D14(RS3), D01 |
| 2. Enumerate drugs used as mydriatics. Mention the indications and contraindications for their use.  | 119 | 148 | J07(RS2)                |
| 3. Atropine substitutes used in the eye. Explain their rationale.                                    | 119 | 148 | D12(RS3), J13(RS3), D10 |
| 4. Adverse effects of atropine and mention the atropine congeners used in gastrointestinal diseases. | 120 | 147 | D08(RS2)                |
| 5. Treatment of belladonna poisoning.                                                                | 120 | 136 | J15                     |

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	KDTPT	SHRM
<b>Short Answers</b>		
1. How does glycopyrrolate differ from atropine sulfate?	—	150 J04, J05
2. Explain the effects of atropine on eye and its clinical indication.	114	147 D13(RS3)
3. Why atropine is not preferred for ophthalmoscopic examination of retina in adults?	114	148 J16(RS3)
4. Scopolamine.	115	144 D07(RS2)
5. Atropine substitutes.	116	145 J08(RS2), D14
6. What are atropine substitutes? Name two atropine substitutes used in eye.	116	144, 149 J10
7. Enumerate two/four differences between atropine and hyoscine. Mention the use of hyoscine with different routes of its administration.	116	144 J07(RS2), D13
8. List three atropine derivatives and mention one use for each.	116	153 D10(RS2), J13
9. What are the important therapeutic uses of hyoscine?	116	153 J16(RS3)
10. Drotaverine	118	152 J11(RS2)
11. Name four uses of atropine.	118	147 J15, J16
12. List two therapeutic uses and two contraindications of atropine sulfate.	118	147 D99
13. List three uses and three adverse effects of atropine.	118	147 D15(RS3)
14. Atropine poisoning.	120	154 J10(RS2), J12(RS2)
15. Why physostigmine is preferred over neostigmine in atropine (belladonna) poisoning?	120	154 J03, D12, D16
16. Rationale for using physostigmine in atropine poisoning.	120	154 J16(RS3)
17. List two contraindications for use of hyoscine.	121	— D03
18. Two contraindications for atropine and explain the rationale for the same.	121	— J09(RS2), J05
19. Atropine eye drops are contraindicated in glaucoma (reasoning).	121	148 D04
20. Atropine is contraindicated in elderly males with prostatic hypertrophy.	121	152 J06
21. List two ganglion blocking drugs and enumerate two therapeutic indications for their use.	122	193 D03, J05

Contd...

Contd...

KDTPT SHRM

**CHAPTER 9****ADRENERGIC SYSTEM AND DRUGS****Long Essays**

- |                                                                                                                                                                                                                                                                                       |                    |               |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|------------------------------|
| 1. Classify sympathomimetics (clinical classification of adrenergic drugs). Write the pharmacological (cardiovascular) actions of adrenaline. List the therapeutic uses of adrenaline mentioning the pharmacological rationale for each indication and adverse effects of adrenaline. | 129, 130, 133, 137 | 166, 168, 169 | D00, J01, D04, J05, J06, J16 |
| 2. Classify sympathomimetic drugs. Discuss in detail pharmacological actions of dopamine and its uses.                                                                                                                                                                                | 129, 134           | 166, 171      | D11                          |

**Short Essays**

- |                                                                                                       |     |     |                    |
|-------------------------------------------------------------------------------------------------------|-----|-----|--------------------|
| 1. Dale's vasomotor reversal phenomenon.                                                              | 131 | 169 | J08                |
| 2. Dopamine—pharmacological actions, route of administration, therapeutic uses and adverse reactions. | 134 | 171 | D15                |
| 3. Dobutamine.                                                                                        | 134 | 172 | D02                |
| 4. Pharmacological basis of dopamine in cardiogenic shock with oliguria.                              | 134 | 171 | J08(RS2), D10(RS2) |
| 5. Nasal decongestants.                                                                               | 136 | 174 | J03, J13           |
| 6. Explain therapeutic uses of sympathomimetic drugs (adrenergic drugs).                              | 137 | 169 | J16(RS3)           |
| 7. Drug therapy of cardiogenic shock.                                                                 | 137 | 171 | J02, D11           |
| 8. Therapeutic uses of adrenaline with dose and route of administration.                              | 137 | 169 | J14(RS3), D03      |
| 9. Drugs used for treatment of obesity.                                                               | 139 | 901 | J16(RS3)           |

**Short Answers**

- |                                                                      |     |     |                                             |
|----------------------------------------------------------------------|-----|-----|---------------------------------------------|
| 1. Adrenaline is contraindicated in heart failure.                   | 133 | 170 | D06                                         |
| 2. Dopamine (two uses).                                              | 134 | 171 | D08(RS2), J12(RS2), D09                     |
| 3. Give an indication and explain the basis for the use of dopamine. | 134 | 171 | D13(RS3)                                    |
| 4. Low dose dopamine is used in cardiogenic shock.                   | 134 | 171 | J15(RS3), D00, J03, J07, D07, J09, J10, J15 |
| 5. Cardiovascular effects of dopamine varies with its dose.          | 134 | 171 | J01                                         |

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	KDTPT	SHRM	
6. Outline the rationale of using dopamine infusion in shock.	134	171	J04
7. State reasons—dopamine is preferred to noradrenaline in circulatory failure.	134	171	D06(RS2)
8. How ephedrine shows phenomenon of tachyphylaxis?	134	179	D15
9. Nasal decongestants.	136	174	J08(RS2), D10(RS2), J13(RS3), D13(RS3), D16(RS3), D00, J09, D12, D16
10. Mention two nasal decongestants and list two adverse effects.	136	174	J16
11. Selective $\beta_2$ stimulants.	136	176	D15(RS3)
12. Therapeutic uses of adrenaline.	137	169	D12(RS3), D05, J08, J09, D10, J11, J14
13. Phenylephrine is used as mydriatic.	138	173	J03

**CHAPTER 10****ANTIADRENERGIC DRUGS (ADRENERGIC RECEPTOR ANTAGONISTS) AND DRUGS FOR GLAUCOMA****Long Essays**

- |                                                                                                                                                                                                                              |               |               |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------------|
| 1. Classify beta blockers. Write the pharmacological actions, therapeutic uses, adverse effects, contraindications and drug interactions of beta blockers (propranolol). Mention the advantages of cardioselective blockers. | 144, 147, 149 | 184, 186, 188 | D99, D04, D12, J15 |
| 2. Classify $\beta$ -blockers. Describe their adverse effects and endocrine uses. Explain the pharmacological basis for their use in hypertension and heart failure.                                                         | 144, 146, 149 | 184, 186, 187 | D07(RS2)           |
| 3. Name the cardioselective beta blockers. Mention their advantages over non-selective beta blockers. Describe the therapeutic uses of beta blockers.                                                                        | 147, 149      | 184, 188, 186 | J03                |
| 4. Classify the drugs used in treatment of glaucoma. Write the mechanism of action and adverse effects of any one of them.                                                                                                   | 153           | 136, 137      | D06                |
| 5. Describe the drug treatment of glaucoma giving pharmacological rationale for each drug.                                                                                                                                   | 153           | 136, 137      | D07                |

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	KDTP	SHRM	
<b>Short Essays</b>			
1. Prazosin (uses and adverse effects).	142	182	D13(RS3), D16(RS3), J00
2. Therapeutic uses and adverse effects of $\alpha$ -blockers (alpha blockers).	143	181	J10(RS2), J11(RS2), J12(RS2), D02, J09
3. Tamsulosin in benign prostatic hypertrophy.	142	183	D11
4. Classify beta adrenergic blocking drugs.	144	184	J05
5. Adverse effects and contraindications of beta blocker.	146	187	J16(RS3), D16
6. Cardioselective beta blockers and their advantages.	147	188	J01, D04, J08, J16
7. Esmolol.	149	189	D06
8. Beta blockers (propranolol)—write their uses and adverse effects.	146	186	J09(RS2), D11(RS2), D12(RS3), J13(RS3), D13(RS3), D14(RS3), D15(RS3), D05, J10, J12, D13, D14
9. Cardiovascular uses of $\beta$ -blockers.	149	186	J08(RS2), J11
10. Extracardiac uses of $\beta$ -blockers.	150	186	D11
11. Classify drugs used in glaucoma.	153	137	D05
12. Drug therapy of glaucoma.	151	137	J02, J08, D15
13. Drugs used for open (wide) angle glaucoma/chronic simple glaucoma.	153	136	D08(RS2), D11(RS2), J15
14. Pharmacotherapy of acute congestive glaucoma.	156	136	D14(RS3), J04, D08
<b>Short Answers</b>			
1. Name four $\alpha$ -blockers.	140	180	D13
2. List three alpha one receptor selective blockers and give two therapeutic indications.	140	182	J05, D11, J13
3. Mention two alpha blockers with one therapeutic use for each.	140	180	D15
4. How prazosin helps in benign prostatic hyperplasia?	142	182	J04
5. Prazosin does not cause reflex tachycardia in hypertensive patients.	142	182	J06

Contd... —



Contd....

	KDPT	SHRM	
6. Mention two side effects of prazosin.	142	182	D10, J16
7. First dose phenomenon with example.	142	182	D12(RS3), J13(RS3), D11
8. Terazosin is used in benign prostatic hypertrophy.	142	182	J07
9. Therapeutic uses of alpha blockers (prazosin).	143	182	D00, D05, D08, J11, J14
10. Role of tamsulosin in patients with benign hypertrophy of prostate.	142	183	D16
11. Rationale for use of alpha blockers in benign hypertrophy of prostate.	143	182	J08
12. List four nonselective beta blockers.	144	184	D15
13. Two contraindications of propranolol.	146	187	J00, D03, D10
14. Propranolol is contraindicated in variant angina.	545	186	J07
15. Propranolol alone should not be used in patients with variant angina. Give reasons.	545	186	D00
16. Propranolol is contraindicated in bronchial asthma.	147	187	D01, D02, D04, J14, D14
17. Propranolol should not be used alone in pheochromocytoma.	150	187	J06
18. Why is atenolol preferred to propranolol in clinical practice?	147	188	J10
19. Metoprolol.	148	188	D16(RS3)
20. Specify two noncardiac uses of propranolol.	150	186	D08
21. Rationale for use of propranolol in thyrotoxicosis.	150	187	J08
22. Labetalol is used in pheochromocytoma.	151	190	J01
23. Carvedilol.	151	190	J11(RS2)
24. Name two/four drugs used in glaucoma.	153	137	D00, D08, J12
25. Mention four drugs used in chronic glaucoma.	153	137	D12
26. Name two drugs used in glaucoma with their mechanism of action.	153	137	D13
27. $\beta$ -blockers in glaucoma.	153	137	J12(RS2)
28. Mention two beta blockers in glaucoma.	153	137	J11
29. Specify two drugs used in wide angle glaucoma.	153	136	D09
30. Rationale for use of timolol in glaucoma.	153	188	J10, J13

Contd.---

Contd...

	KDTP	SHRM	
31. Dipivefrine is used in glaucoma.	154	172	J07
32. Acetazolamide is used in glaucoma.	155	137	J03, D14
33. Latanoprost.	155	361	J13(RS3)

## Section III: Autacoids and Related Drugs

## CHAPTER 11

## HISTAMINE AND ANTIHISTAMINICS

## Short Essays

1. Pharmacological actions uses and adverse effects of H1 blockers.	163	340	J13(RS3)
2. Promethazine HCl.	163	340	J15(RS3), D05
3. Enlist antihistaminics. What are the uses of antihistaminics?	164, 167	341	J14
4. Indications and adverse effects of antihistamines.	165	342	J13
5. Nonsedative antihistamines (H1 blockers) (newer second-generation antihistaminics).	166	340	D16(RS3), J01, D01, D10, D12
6. Therapeutic uses of H1 antihistaminics.	167	342	J09(RS2), D06, D07, J09

## Short Answers

1. How does cetirizine differ from diphenhydramine?	—	340	J04, J07
2. Mention two uses and two adverse effects of antihistaminics.	165	342	D16
3. Second-generation H1 antihistamines.	166	340	D12(RS3)
4. Name two nonsedative antihistamines. Why are they nonsedative.	164	341	D00, D03, J12
5. Name three, second-generation H1 antihistamines and their uses.	164	341	D15(RS3), J16
6. Explain the advantages of second-generation H1 receptor blockers.	166	340	J05
7. Fexofenadine.	166	340	D07(RS2)

## CHAPTER 12

## 5-HYDROXYTRYPTAMINE, ITS ANTAGONISTS AND DRUG THERAPY OF MIGRAINE

## Short Essays

1. 5-HT (serotonin) antagonists in therapy.	174	347	J10(RS2), J12(RS2), D00
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Contd...

Contd...

	KOTPT	SHRM	
2. Enlist drugs used for migraine with their mechanism of action.	177	349	D08(RS2)
3. Treatment of migraine.	177	349	D14(RS3)
4. Drug therapy of acute migraine.	177	349	J07(RS2), J14(RS3)
5. Drugs used for migraine prophylaxis.	179	349	D07(RS2), D01

**Short Answers**

1. Name four 5-hydroxytryptamine (5HT) antagonists.	174	347	D02
2. Name two serotonin (5HT) antagonists. Give indications for use of any one of them.	174	347	J16(RS3)
3. List three classes of drugs used in the therapy of migraine.	177	349	D03, D05
4. Name four drugs used for the treatment of migraine.	177	350	D16
5. Sumatriptan.	178	347	J08(RS2)
6. Rationale of using sumatriptan in acute attack of migraine.	178	347	J13
7. Drugs used in prophylaxis of migraine.	179	351	D12, D13

**CHAPTER 13****PROSTAGLANDINS, LEUKOTRIENES AND PLATELET-ACTIVATING FACTOR****Short Essays**

1. Prostaglandin analogs.	181	357	J16
2. Pharmacological actions of prostoglandin E2.	183	357	J08(RS2)
3. Prostaglandins used in therapy.	189	360	J03
4. Therapeutic (obstetrical) uses of prostaglandins.	189	360	J07(RS2), D07(RS2), D08(RS2), D01, J05, D10
5. Dinaprostone.	189	360	J06

**Short Answers**

1. Mention three prostaglandin analogs and list their three uses.	189	360	D16(RS3), J13
2. Mention four important indications for use of prostaglandins.	189	360	J01, J07

Contd... —

Contd...

	KDPT	SHRM	
3. Mention two uses and two adverse effects of prostaglandin analogs.	189	360	D12, D16
4. Name four prostaglandin preparations used in therapy.	189	360	D02
5. Carboprost tromethamine.	189	360	J09(RS2)

**CHAPTER 14****NONSTEROIDAL ANTI-INFLAMMATORY DRUGS AND ANTIPYRETICS-ANALGESICS****Long Essay**

- |                                                                                                                                                                     |               |          |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|----------------------------------------|
| 1. Classify nonsteroidal anti-inflammatory drugs (NSAIDs). Describe the mechanism, pharmacological actions, adverse effects, uses and contraindications of aspirin. | 192, 195, 197 | 363, 364 | J15(RS3), D15(RS3), J01, D03, D04, D10 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|----------------------------------------|

**Short Essays**

- |                                                                                                   |     |     |               |
|---------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Classify nonselective cyclooxygenase (COX) inhibitors. Mention their uses and adverse effects. | 192 | 363 | J16           |
| 2. Pharmacological actions of NSAIDs.                                                             | 193 | 364 | J14           |
| 3. Salicylates.                                                                                   | 195 | 364 | D99           |
| 4. Uses of aspirin.                                                                               | 198 | 365 | J04, D08, J09 |
| 5. Newer uses of aspirin.                                                                         | 199 | 365 | J08           |
| 6. Nimesulide.                                                                                    | 203 | 369 | J00, J03      |
| 7. Diclofenac sodium.                                                                             | 204 | 368 | D15           |
| 8. Selective COX-2 inhibitors (merits and demerits).                                              | 205 | 369 | J08(RS2), J08 |

**Short Answers**

- |                                                                                                                    |     |     |               |
|--------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Aspirin reduces body temperature during fever.                                                                  | 195 | 365 | J01           |
| 2. Mention two uses and two adverse effects of aspirin.                                                            | 197 | 366 | J13           |
| 3. Aspirin is contraindicated in patients with bleeding diathesis. Give reason.                                    | 197 | 367 | D00, J03      |
| 4. Aspirin is not administered to a child of 5 years.                                                              | 197 | 367 | D14           |
| 5. Aspirin is contraindicated in pregnancy.                                                                        | 197 | —   | J06           |
| 6. Uses of aspirin.                                                                                                | 198 | 364 | D04, J11, J15 |
| 7. State the rationale for use of aspirin in low doses as an antiplatelet drug. Enumerate indications for its use. | 199 | 365 | J07(RS2)      |
| 8. Indomethacin.                                                                                                   | 202 | 368 | D12(RS3)      |

Contd... —

Contd...

	KDTPT	SHRM
9. Rationale for using indomethacin in dysmenorrhea.	202	368 J02
10. Name two selective cyclooxygenase-2 (COX-2) inhibitors. What is their advantage over nonselective cyclo-oxygenase inhibitors?	205	370 J04, J09
11. What are advantages and disadvantages of selective COX-2 inhibitors?	205	370 D14(RS3)
12. Paracetamol poisoning.	206	371 D10(RS2)
13. Mention the antidote for paracetamol poisoning—explain its rationale.	207	372 D09
14. N-acetylcysteine is used as antidote in paracetamol poisoning. Give reasons.	207	372 D00, J02, D02

**CHAPTER 15****ANTIRHEUMATOID AND ANTIGOUT DRUGS****Long Essay**

1. Pharmacotherapy of rheumatoid arthritis. 210 377 D14(RS3)

**Short Essays**

1. Drugs in rheumatoid arthritis. 210 377 D10(RS2), J11, D11
2. Disease modifying agents for rheumatoid arthritis and their mechanism of action. Describe the role of any two in rheumatoid arthritis. 210 377 J07(RS2), J09(RS2), J13(RS3), D03, J04, J05
3. Leflunomide. 212 378 J08(RS2)
4. Colchicines. 214 374 D06, J07
5. Treatment of acute attack of gout. 214 374 D07(RS2)
6. Treatment of gouty arthritis. 214 375 D11(RS2)
7. Treatment of chronic gout. 215 375 D15
8. Uricosuric agents. 215 376 D16
9. Allopurinol. 216 375 D09(RS2), D99, D05, J09

**Short Answers**

1. Name two drugs used in rheumatoid arthritis. 210 377 J01
2. Name three disease modifying anti-rheumatic drugs (DMARD) used in treatment of rheumatoid arthritis. 210 377 J16(RS3)
3. Rationale of using chloroquine in rheumatoid arthritis. 211 381 D02

Contd...

Contd...

	KDTPT	SHRM	
4. Leflunomide.	212	378	J11(RS2)
5. Rationale for use of gold salts in rheumatoid arthritis.	212	380	D07
6. Rationale for use of penicillamine in rheumatoid arthritis.	212	381	D10
7. Name two drugs used in acute gout and chronic gout.	213	374	J13, D13, J15
8. Mention three drugs used in acute gout.	213	374	D15(RS3)
9. Mention two drugs in gout and its side effects.	213	374	J12
10. Colchicine (mechanism of action, one use and one adverse effect).	214	374	J10(RS2), D14(RS3)
11. Rationale of using colchicines in acute gout.	214	374	D00, D02, J11, D11
12. List two important side effects of colchicines.	214	374	J04
13. Uricosuric agents.	215	376	D10(RS2), D12(RS3), D99
14. Probenecid.	215	376	J13(RS3), D10
15. Mention one use of probenecid with its mechanism of action.	215	376	D12
16. Allopurinol should not be used in acute gout.	217	375	J02

## Section IV: Respiratory System Drugs

## CHAPTER 16

## DRUGS FOR COUGH AND BRONCHIAL ASTHMA

## Long Essay

1. Classify drugs used in bronchial asthma. 222, 129 643, 168 D12  
Explain the mechanism of action, adverse effects and uses of adrenaline.

## Short Essays

1. Dosage forms for antiasthma drugs. — 643 D10
2. Expectorants. 218 651 J16
3. Mucolytics. 219 652 J01, D06, J15
4. Antitussives. 219 650 J11(RS2), J15(RS3), D99
5. Classify drugs used in bronchial asthma. 222 643 D11
6. List the classes of drugs used for therapy of bronchial asthma giving the pharmacological rationale. 222 643 J04
7. Bronchodilators. 222 645 D10(RS2), J14

Contd. —

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	KDTP	SHRM	
8. Selective $\beta_2$ -agonists in the treatment of bronchial asthma.	222	645	J11
9. Mention $\beta_2$ -agonists and write their therapeutic uses and side effects.	223	176	D06(RS2)
10. Selective $\beta_2$ -stimulants.	223	176	J15(RS3)
11. Salbutamol.	223	177	J16(RS3), D15, D16
12. Long acting $\beta_2$ -agonists in asthma.	223	645	D07(RS2)
13. Quick relief medications in asthma.	223	645	J09(RS2)
14. Theophylline (action and uses).	226	646	J06
15. Leukotriene antagonists.	228	648	D14(RS3)
16. Mast cell stabilizers.	229	647	D15(RS3), D01, D07
17. Disodium cromoglycate (cromolyn sodium).	229	648	J07, D13
18. How does sodium cromoglycate help a patient of bronchial asthma?	229	648	D03
19. Role of corticosteroids in bronchial asthma.	229	647	D08(RS2)
20. Inhalational glucocorticoids.	230	647	J14(RS3), D16(RS3), J00
21. Inhalational antiasthmatic drugs.	230	647	J02
22. Discuss the drug treatment of bronchial asthma.	232	645	D11(RS2)
23. Treatment of status asthmaticus.	233	649	J07(RS2), J11, D13
<b>Short Answers</b>			
1. Mucolytics.	219	652	D08(RS2), J10(RS2)
2. What are mucolytic agents? Give two examples.	219	652	J09, J16
3. List two mucolytics and give their mechanism of action.	219	652	D14(RS3), D03, J04, D05
4. Mention two drugs used to suppress dry cough.	218	650	D02
5. Cough suppressants.	218	650	J15
6. Pharyngeal demulcents.	218	651	D07
7. Antitussives.	219	650	D13(RS3)
8. $\beta_2$ agonists.	222	176	J14
9. Mention examples of four adrenergic ( $\beta_2$ ) agonists their uses along with basis for use.	223	176	J07(RS2)

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	KDTPT	SHRM	
10. Salbutamol (uses and adverse effects).	223	177	D08(RS2), J14
11. Rationale for use of salbutamol in bronchial asthma.	223	645	J09
12. Uses of selective beta-2 agonists.	223	177	D07
13. Long acting beta-2 agonists.	223	177	D08(RS2)
14. Mechanism of action of aminophylline in bronchial asthma.	225	646	D07
15. Why theophylline use has declined in bronchial asthma?	226	646	J13
16. Atropine derivatives in bronchial asthma.	227	646	D11
17. List three leukotriene antagonists.	228	648	D16(RS3)
18. Mast cell stabilizers.	229	647	D12(RS3)
19. Mention two mast cell stabilizers. Mention its use.	229	647	D02, J13
20. Mechanism of action of disodium chromoglycate.	229	648	D10
21. Inhalational steroids and its uses.	230	647	D11
22. Enumerate four inhalational corticosteroids.	230	647	J05
23. Mention two adverse effects of inhalational corticosteroids.	230	647	J08
24. Name two drugs used in status asthmaticus.	233	649	J03

## Section V: Hormones and Related Drugs

## CHAPTER 17

## ANTERIOR PITUITARY HORMONES

## Short Essays

1. Octreotide.	238	547	D09
2. Bromocriptine.	239	550	D14(RS3), J08
3. Gonadotropins and their diagnostic uses.	240	551	D11(RS2)

## Short Answers

1. How does adrenocorticotrophic hormone (ACTH) differ from cortisol? Give three points.	—	—	J04
2. Name four hormones secreted from anterior pituitary gland.	236	545	D15
3. Somatostatin.	237	547	J09
4. Prolactin.	238	549	D10(RS2)
5. Bromocriptine.	239	550	D08(RS2)

Contd... —



Contd...

	KDPT	SHRM	
6. Uses of bromocriptine.	239	550	D07, D09, D13, D14
7. Rationale for using bromocriptine in acromegaly.	239	—	D01
8. Gonadotropin-releasing hormone (GnRH) analogs.	242	553	J11(RS2), J15(RS3)

**CHAPTER 18****THYROID HORMONES AND THYROID INHIBITORS****Long Essays**

- |                                                                                                                                                                                                             |               |               |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-------------------------|
| 1. With the help of diagram of thyroid hormone synthesis, mark the site of action of various antithyroid drugs. Explain mechanism of action, adverse effects and uses of radioactive iodine.                | 246, 255      | 608, 615      | D16(RS3)                |
| 2. Classify antithyroid drugs. Write the mechanism of action, indications for use and unwanted effects of one drug inhibiting hormone synthesis.                                                            | 252           | 614           | J03                     |
| 3. Classify antithyroid drugs with examples. Describe the mechanism of antithyroid actions of any two groups of antithyroid drugs and state their advantages and disadvantages.                             | 252           | 614           | J07(RS2)                |
| 4. Classify thyroid inhibitors. Explain the mechanism of action, uses and adverse effects of propylthiouracil.                                                                                              | 252           | 614           | D13(RS3), D14           |
| 5. Classify the antithyroid drugs. Discuss the mechanism of actions, advantages, disadvantages (adverse effects) and indications for radioactive iodine. Add a note on the management of thyrotoxic crisis. | 252, 255, 256 | 614, 615, 616 | J11(RS2), J00, J06, J14 |

**Short Essays**

- |                                                                                   |     |     |                                   |
|-----------------------------------------------------------------------------------|-----|-----|-----------------------------------|
| 1. Thyroid inhibitors (antithyroid agents/drugs).                                 | 252 | 614 | D08(RS2), D10(RS2), J11, D11, D15 |
| 2. Carbimazole (mechanism of action, therapeutic uses and adverse effects).       | 252 | 614 | J14(RS3), D02, J09                |
| 3. Management of thyrotoxicosis.                                                  | 254 | 616 | J08                               |
| 4. Lugol's iodine.                                                                | 254 | 615 | D05                               |
| 5. Outline the mechanism of action and indications for use of radioactive iodine. | 255 | 615 | J04                               |

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	KDTP	SHRM	
6. Radioactive iodine (Iodine-131).	255	615	J05, J13, J16, D16
7. Merits and demerits of radioactive iodine in therapy of hyperthyroidism.	256	615	D07, D09
8. Drugs used for thyrotoxic crisis.	256	616	J08(RS2)
9. Treatment of thyroid toxic crisis.	256	616	J09(RS2)

**Short Answers**

1. Name three antithyroid drugs and their mechanism of action.	252	614	D14(RS3)
2. Name four differences between propylthiouracil and carbimazole.	253	—	D06(RS2), D12
3. How do iodides act as antithyroid drugs? What are indications for their use?	254	615	J16(RS3)
4. Rationale for using Lugol's iodine 2 weeks prior to thyroid surgery (subtotal thyroidectomy).	255	615	J01, D06, J11, D11
5. Radioactive iodine ( <sup>131</sup> I).	255	615	J10(RS2), D10(RS2), D15(RS3)
6. Indications (diagnostic) and contraindication of radioactive iodine.	255	615	D03, D13
7. Radioactive iodine is not preferred for the treatment of thyrotoxicosis in younger age group.	256	615	D01
8. Write adverse effects and contraindications of radioactive iodine.	256	615	D00, J15
9. List two advantages and two disadvantages of radioactive iodine.	256	615	J03, J07
10. Explain the rationale for propranolol in hyperthyroid crisis.	256	616	J05
11. Treatment of thyroid storm.	256	616	D14

**CHAPTER 19****INSULIN, ORAL HYPOGLYCEMIC DRUGS AND GLUCAGON****Long Essays**

1. Classify insulin preparations. What are the pharmacological actions, side effects of insulin.	263, 260, 265	633, 635	D11(RS2)
2. Classify the conventional insulin preparations and the newer insulin analogs according to their time activity profile. Describe the mechanism of action and adverse effects of insulin.	263, 261, 265	633, 634, 635	J09(RS2), D07

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	KDTPT	SHRM
3. Enumerate the drugs used for the treatment of diabetes mellitus. Discuss the mechanism of actions and adverse effects of oral hypoglycemic drugs.	263, 270	632,636 D04
4. Classify the drugs used in diabetes mellitus. Write the mechanism of action, uses and adverse effects of insulin.	263, 270, 261	632,633 J14(RS3), D99
5. Classify drugs used in diabetes mellitus. Explain mechanism of action, therapeutic uses, adverse effects of insulin. How would you treat diabetic ketoacidosis.	263, 270, 261, 265	632,633, J11 635
6. Classify oral hypoglycemic drugs with examples under each group. Describe the mechanism of action uses and adverse effects of sulfonylurea. Mention two drugs, which could interact with sulfonylureas.	270	636,637 D06(RS2), J13(RS3), D02, D10
7. Classify oral hypoglycemic drugs. Discuss briefly the mechanism of action, side effects and uses of glibenclamide.	270	636,637 D09
8. Classify the oral antidiabetic drugs. Explain the mechanism of action and adverse effects of each group of drugs. Add a note on preparations of insulin. Describe the treatment of diabetic coma/diabetic ketoacidosis.	270, 263, 267	636, 634, 635 D10(RS2), D12(RS3), D01
9. Classify oral hypoglycemic agents with examples. Explain the mechanism of action of any one group. Outline the management of diabetic ketoacidosis.	270, 267	636,635 D05
10. Classify oral antidiabetic drugs. Explain the mechanism of action, adverse effects and uses of biguanides.	270, 275	636, 638 J13
<b>Short Essays</b>		
1. Insulin preparations.	263	633 D03, D12
2. Newer insulins and advantage of newer insulins.	264	633 J10(RS2), D14(RS3), J00
3. Insulin analogs and their uses.	264	633 D09(RS2)
4. Adverse effects of insulin and its management.	265	636 D13
5. Management of diabetes ketoacidosis (ketoacidotic diabetic coma).	267	635 D15(RS3), D08, J09, D15

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	KDTP	SHRM
6. Insulin resistance.	269	636 J02
7. Oral hypoglycemic agents.	270	636 D11
8. Insulin secretagogues.	270	636 D13(RS3)
9. Sulfonylurea (mechanism of action, adverse effects and therapeutic uses) as antidiabetic drugs.	270	636 J07(RS2), J16(RS3), J11, J12, J14
10. Second generation sulfonylureas.	270	636 D07(RS2)
11. Glimepiride.	270	636 J07
12. Adverse effects and uses of glibenclamide.	271	636 J10
13. Metformin (mechanism of action and side effects).	275	638 J04
14. Meglitinide derivatives and their uses.	273	638 J08(RS2)
15. Insulin sensitizers.	276	639 J08
16. Thiazolidinediones (pharmacological actions and uses).	276	639 D08(RS2), J11(RS2)
17. Glucagons.	280	640 D06

**Short Answers**

1. Mention types of insulin preparations.	263	633 J15(RS3)
2. Name four newer insulin preparations.	263	633 D00, J07
3. Name two newer insulins and write their advantages.	263	633 J15, J16
4. Name three insulin analogs.	264	635 D15(RS3)
5. Enumerate advantages of human insulin.	264	633 J05
6. What are the indications for human insulins?	266	635 J07(RS2)
7. Two adverse effects of insulin.	265	636 D09
8. Why is lipodystrophy seen with insulin therapy? How will you minimize it?	266	636 D10
9. Soluble/crystalline insulin is preferred for treatment of diabetic ketoacidosis.	268	635 D06, J14
10. Treatment of insulin resistance.	269	636 D14
11. Mention two oral hypoglycemic agents.	270	636 D99
12. Explain the mechanism of action of sulfonylureas.	270	636 D16
13. Sulfonylureas are not effective in type 1 (juvenile) diabetes mellitus.	271	632 J02
14. Tolbutamide not useful in type 1 diabetes mellitus (IDDM).	271	632 D11
15. Glibenclamide.	270	636 D08(RS2)

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Contd. —

	KDTPT	SHRM	
16. Advantages of glimepiride.	272	638	J06
17. Mechanism of action of biguanides.	275	638	D14
18. Adverse effects of metformin.	276	638	D06
19. Alpha-glucosidase inhibitors.	277	639	D16(RS3)
20. Acarbose.	277	639	D11(RS2), J15
21. Indication for oral antidiabetic drugs.	278	636	D15
22. Incretin analogs.	—	640	J12(RS2)

**CHAPTER 20****CORTICOSTEROIDS****Long Essays**

1. Classify corticosteroids and describe their pharmacological actions. Describe the adverse effects of long-term high dose corticosteroid therapy. 289, 282, 293 569, 564, 572 J16(RS3)
2. Classify glucocorticoids. Describe the mechanism of action, adverse effects, contraindications and uses of glucocorticoids (hydrocortisone). Write a note on methods to overcome the hypothalamic-pituitary adrenal (HPA) axis suppression. 289, 287, 294 569, 564, 572, 568 J12(RS2), J15(RS3), D08, J12
3. Classify glucocorticoids with examples. Mention the pharmacological actions, adverse effects and non-endocrine uses of anyone. 289, 284 569 J07
4. Classify glucocorticoids. Describe their mechanism of anti-inflammatory actions, therapeutic uses and adverse effects. 289, 285, 290, 293 569, 566, 568, 573 D15(RS3)
5. Enumerate (natural and synthetic) glucocorticoid preparations. Write their mechanism of action, important pharmacological action, therapeutic uses and adverse effects. 289 569 J01, D15, J16, D16
6. Enumerate corticosteroid preparations. Write in brief their pharmacological actions and adverse effects. 289 569 D00
7. Classify glucocorticoids according to their duration of action. Describe their adverse effects and indications. 289 569 J10(RS2), D11, D13

**Short Essays**

1. Corticosteroids—actions and uses. 284 565 D09(RS2), D10(RS2), D09

Contd. —

Contd...

	KDTP	SHRM	
2. Pharmacological actions of glucocorticoids.	284	565	J10
3. Dexamethasone.	289	569	D05
4. Therapeutic uses of glucocorticoids.	290	568	D11(RS2), D12(RS3), D10, J11, J15
5. Name therapeutic uses and adverse effects of corticosteroids.	290	568	D06(RS2), D14(RS3), D12
6. Glucocorticoid toxicity (adverse effects).	293	573	J04, J13, J14
7. Adverse effects of prolonged glucocorticoid therapy.	293	573	J13(RS3), D07
8. What is the rationale behind the use of alternate day glucocorticoid therapy?	294	571	D03
9. Contraindications for glucocorticoids.	294	574	D01

**Short Answers**

1. Specify two effects of aldosterone.	283	568	J10
2. Hydrocortisone is used in Addison's disease.	290	568	D06
3. Glucocorticoids are used as adjuvant in Hodgkin's diseases.	292	572	J00
4. Specify two effects of aldosterone.	293	568	J14
5. Specify two side effects of corticosteroids.	293	573	D09
6. Glucocorticoids should be used cautiously in presence of infections.	293	573	J06
7. Glucocorticoids are contraindicated in patients with peptic ulcer.	293	574	J00
8. Glucocorticoids should not be stopped abruptly following long-term administration.	294	571	J02
9. Give reasons: After a few days of administration of prednisolone, the drug should be withdrawn gradually.	294	571	J03
10. Contraindications for glucocorticoid therapy.	294	574	D13(RS3)

**CHAPTER 21****ANDROGENS AND DRUGS FOR ERECTILE DYSFUNCTION****Short Essays**

1. Adverse effects and uses of androgens.	299	599	J08
2. Anabolic steroids.	300	598	D08

Contd... —

Contd...

	KDTPT	SHRM	
3. 5 $\alpha$ -reductase inhibitors.	302	602	J15(RS3)
4. Finasteride.	302	602	J08(RS2)
5. Sildenafil.	303	604	D09(RS2), J09

**Short Answers**

1. Natural and synthetic androgens.	296	595,600	D11(RS2)
2. Anabolic steroids.	300	598	D16(RS3)
3. What are anabolic steroids? Give two examples.	300	595	D10, D14
4. Name two anabolic steroids. Name two important uses.	300	595	D00, D09
5. Enumerate the adverse effects of anabolic steroids.	300	599	J05
6. Explain the therapeutic uses of anabolic steroids.	300	596	J07
7. Name two 5 $\alpha$ -reductase inhibitors and list their use.	302	602	D13
8. Finasteride—mention one therapeutic use and rationale.	302	602	D05
9. Enzyme inhibitor in benign prostatic hypertrophy—explain.	302	602	J05
10. Sildenafil citrate.	303	604	J08(RS2), D08(RS2), J09(RS2)

**CHAPTER 22****ESTROGENS, PROGESTINS AND CONTRACEPTIVES****Long Essays**

- Classify oral contraceptives. Discuss briefly the pharmacological (mechanism) action, drug interactions, adverse effects, uses and contraindications of oral contraceptives. 321 590, 591 D07(RS2), J05, J09, J10, J15
- Rationale of using estrogens and progestogens in oral contraceptives. Explain the adverse effects of estrogens. 321, 309 591, 585 D08(RS2)

**Short Essays**

- Preparations of estrogens and their therapeutic uses. 308 583 J01
- Climiphene citrate. 312 586 D99, J08, D12, J16
- Antiestrogens. 312 587 D08(RS2), D02

Contd...

Contd...

	KDTP	SHRM	
4. Selective estrogen receptor modulators and their uses.	313	586	J08(RS2), D09(RS2), D11(RS2)
5. Tamoxifen.	313	586	J03, J05
6. Mifepristone	319	589	J08
7. Oral contraceptive pills.	321	591	D10(RS2), J12(RS2), D13(RS3), D16
8. Mechanism of action of hormonal contraceptives.	321	591	D16(RS3)
9. Types of oral contraceptives.	321	590	D11
10. Injectable contraceptives.	323	593	J00
11. Enumerate types of oral contraceptive pills. Mention the adverse effects of combination pills.	322	590, 591	D06(RS2)
12. Mechanism of action of oral contraceptives.	323	591	J03
13. Oral contraceptives—side effects.	325	591	D11(RS2), D09, D10, J11
14. Contraindications for use of oral contraceptives.	326	592	D03
<b>Short Answers</b>			
1. What are the indications for use of oral contraceptive, besides contraception?	—	594	J07(RS2)
2. Name four uses of estrogens.	309	584	J03
3. What are the benefits of hormonal replacement therapy (HRT) in post-menopausal women?	310	584	J07(RS2)
4. Estrogens in prostatic cancer.	312	585	D11
5. Clomiphene citrate (two uses and two adverse effects).	312	586	J10(RS2), D10(RS2), J11(RS2), D12(RS3), D07
6. Write mechanism of action and two uses of clomiphene citrate.	312	586	D14(RS3)
7. What is the indication for use of clomiphene citrate? What are its adverse effects?	312	586	J16(RS3)
8. Clomiphene citrate (antiestrogenic drug) is used in treatment of sterility or anovulatory infertility in females.	312	586	J00, D01, J07, J09
9. Clomiphene citrate in polycystic ovary disease (PCOD).	312	586	D11

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	KDTPT	SHRM	
10. Mention one estrogen-antagonist. Explain one therapeutic use.	312	586	D05
11. Selective estrogen receptor modulators (SERMs).	313	586	J09(RS2), J13(RS3), J11
12. Name three selective estrogen receptor modulators (SERMs) and list their uses.	313	586	D16(RS3)
13. Two uses of tamoxifen.	313	586	J15
14. Rationale for using tamoxifen in breast cancer.	313	586	D06, J11, D11
15. Letrozole.	314	854	D13(RS3)
16. Letrozole is used in breast carcinoma.	314	854	J06
17. Mifepristone.	319	589	J12
18. What is mifepristone? What are its uses?	319	589	J04, J10, D15
19. Mifepristone in medical abortion.	319	589	D11
20. Emergency contraception.	320	592	D13
21. Rationale for combination of estrogen and progestin as oral contraceptive.	321	591	D00, D01
22. Minipill (mechanism of action).	322	592	D05, D07
23. Oral contraceptives containing only progesterone should be employed in women above 35 years.	326	—	J00
24. Estrogen containing contraceptive pills are not suitable for women above 35 years. Why?	326	—	J02
25. Advantages of combined contraceptive pills.	326	—	D06
26. Centchroman.	327	593	D14

**CHAPTER 23****OXYTOCIN AND DRUGS ACTING ON UTERUS****Short Essays**

1. Compare and contrast oxytocin and methylergometrine.	—	—	J11(RS2)
2. Oxytocics (uterine stimulants).	329	559	J12(RS2), D99
3. Ecobolics.	329	559	D13(RS3)
4. Name uterine stimulants and their therapeutic indications and specify toxicity of each drug.	329	559	D06(RS2)
5. Oxytocin (uses and adverse effects).	329	557	J16(RS3), D16(RS3), J07, J15

Contd...

Contd...

	KDTP	SHRM	
6. Oxytocin and treatment of postpartum hemorrhage.	331	558	D08(RS2)
7. Methyl ergometrine (action and uses).	331	559	D05
8. Uterine relaxants (tocolytic agents).	332	560	D15(RS3), J00, J01, J02, J05, J13, J16

**Short Answers**

1. Mention two uterine stimulants with routes of administration.	329	559	D02
2. Oxytocin.	329	557	D07(RS2)
3. Name a drug used for the induction of labor with the rationale for its use.	330	558	D16
4. Oxytocin is used for induction of labor. Why?	329	558	J01, D11, J12, J14
5. State why ergometrine is not suitable for the induction of labor.	332	559	J07(RS2)
6. Ergometrine is not suitable for induction of labor.	332	559	J00, J02
7. Rationale of using ergometrine in postpartum hemorrhages.	332	559	D00, J03, J09, J11, D12, D13
8. Tocolytics.	332	560	J09(RS2), D09(RS2), D12(RS3), J13(RS3)
9. What are tocolytic agents? Give two/ four examples.	332	560	D03, D05, D10, D12, D14
10. Name three tocolytic drugs with their mechanism of action.	332	560	J14(RS3)
11. Name two commonly used tocolytic agents giving two adverse effects of any one.	332	560	D07
12. Name two tocolytics and its use.	332	560	D16
13. Beta-2 stimulants.	333	560	D11
14. Rationale of using isoxsuprine in premature of labor.	333	560	D13

**CHAPTER 24****DRUGS AFFECTING CALCIUM BALANCE****Short Essays**

1. Vitamin D (uses).	340	620	D12(RS3), J13(RS3), D08
2. Bisphosphonates.	343	623	D13(RS3), J04

Contd...

Contd...

	KDTPT	SHRM	
<b>Short Answers</b>			
1. Calcitonin (uses).	339	622	D06, D07
2. Vitamin D (cholecalciferol).	340	620	D11(RS2), J12
3. Uses of vitamin D.	342	621	D14(RS3), D13, D14, D16
4. Mention two uses and two adverse effects of vitamin D.	342	621	J03, D03
5. Bisphosphonates and their uses.	343	623	J11(RS2), J11, D12, J13
6. State the two adverse effects of bisphosphonates.	344	624	D08
7. Specify two drugs used in hypercalcemia.	344	622	D08

## Section VI: Drugs Acting on Peripheral (Somatic) Nervous System

## CHAPTER 25

## SKELETAL MUSCLE RELAXANTS

## Long Essay

- |                                                                                                                                                                |               |               |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-----|
| 1. Classify the skeletal muscle relaxants with suitable examples. Explain the mechanism of action, therapeutic uses and the adverse effects of d-tubocurarine. | 347, 348, 353 | 197, 198, 200 | D15 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-----|

## Short Essays

- |                                                                                                                       |          |          |               |
|-----------------------------------------------------------------------------------------------------------------------|----------|----------|---------------|
| 1. Reversal of d-tubocurarine induced muscle relaxation.                                                              | —        | 200      | J04           |
| 2. Classify skeletal muscle relaxants with examples for each group. Explain the mechanism of action of any one group. | 347      | 197      | J07(RS2)      |
| 3. Classify skeletal muscle relaxants. Describe the mechanism of action of succinylcholine.                           | 347, 349 | 197, 204 | J14           |
| 4. Mechanism of action of d-tubocurarine.                                                                             | 348      | 198      | J01, D04      |
| 5. Mechanism of action of succinylcholine.                                                                            | 349      | 204      | D00, J03      |
| 6. Mechanism of action, uses and adverse effects of succinylcholine.                                                  | 349      | 204      | J13(RS3)      |
| 7. Compare d-tubocurarine with succinylcholine.                                                                       | 350      | 201      | J00, D02, J09 |
| 8. Depolarizing neuromuscular blocking agents.                                                                        | 353      | 204      | D07(RS2)      |
| 9. d-tubocurarine.                                                                                                    | 353      | 198      | D11           |

Contd... —

Contd...

	KDTP	SHRM	
10. Succinylcholine.	353	204	D12(RS3), D13(RS3), J15(RS3), D05
11. Pancuronium as a muscle relaxant.	353	198	D11(RS2), D03
12. Atracurium.	353	198	J07
13. Dantrolene (mechanism of action and uses).	356	209	J06, D10
14. Centrally acting skeletal muscle relaxants.	356	207	D07
15. Baclofen.	358	208	D08

**Short Answers**

1. Succinylcholine apnea.	—	205	D07, D12, D13
2. How will you reverse d-tubocurarine induced muscle relaxation?	—	200	J05
3. Mention two peripheral neuromuscular blockers.	347	197	D10
4. Name four skeletal muscle relaxants.	347	197	J13
5. Name two/three nondepolarizing muscle relaxants (neuromuscular blockers) and their uses.	347	197	J09(RS2), D15(RS3), D14, J15
6. Mention two drawbacks of d-tubocurarine used as skeletal muscle relaxant.	353	200	D16
7. Why is duration of action of succinylcholine prolonged in certain individuals.	353	205	J10
8. Succinylcholine.	353	204	J08(RS2), J10(RS2)
9. Mention the skeletal muscle relaxant that can be used safely in renal and hepatic function impaired patient.	353	203	J04
10. What is atracurium? How is it eliminated from the body? Write indications for its use.	353	203	D06(RS2)
11. What is the metabolic fate of atracurium?	353	203	J05
12. Neostigmine is not used to treat toxicity due to succinylcholine.	354	204	J01
13. List the important untoward effects of succinylcholine.	355	205	J04, J05
14. Uses of neuromuscular blockers.	355	206	J12(RS2)
15. Dantrolene (therapeutic uses).	356	209	D10(RS2), D05

Contd... —

Contd. —

KDTPT SHRM

## CHAPTER 26

## LOCAL ANESTHETICS

## Long Essay

1. Classify local anesthetics. Explain the mechanism of action, adverse effects and uses of lignocaine. Add a note on preanesthetic medication. 360, 212, 213, D10(RS2), D13 361, 385 441

## Short Essays

1. Classify local anesthetics. Describe the mechanism of action and various types of local anesthesia. 360, 212, J14 361, 367 217, 219
2. Mechanism of action of local anesthesia and classify the same. 360 212, 217 J00, J03, D05, J06
3. Merits and demerits of using adrenaline along with local anesthetic (lignocaine). 363 218 D07
4. Lignocaine (lidocaine/xylocaine). 366 213 D16(RS3), D99, J13
5. Lignocaine—mechanism of action, indications for use and various routes of administration and two side effects. 361 213, 217 D06(RS2)
6. Bupivacaine. 367 213 D06
7. Ropivacaine. 367 213 J11(RS2)
8. Routes of administration local anesthetics (techniques of local anesthesia). 367 219 J13(RS3), J04
9. Spinal anesthesia. 369 220 J14(RS3), J07, D16

## Short Answers

1. Rationale for combining adrenaline along with local anesthetics. 363 218 D14(RS3), J02, J06, J10, J12
2. Rationale for combining adrenaline along with lignocaine for infiltration anesthesia. 363 218 D15(RS3)
3. Xylocaine (lignocaine). 366 213 D08(RS2), D09(RS2)
4. Adverse effects of lignocaine. 366 213 D05, J07, J15
5. Four salient features of lignocaine. 366 213 D07
6. Name two drug interactions seen with procaine. 366 215 D99
7. Mention two techniques of local anesthesia. 367 219 J16
8. Mention two side effects of spinal anesthesia. 369 221 D10
9. Complications of spinal anesthesia. 369 221 D12, J13

Contd. —

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KDTPT SHRM

## Section VII: Drugs Acting on Central Nervous System

## CHAPTER 27

## GENERAL ANESTHETICS

## Short Essays

1. Explain neurolept analgesia.	—	440	D09(RS2), D08
2. Halothane versus nitrous oxide.	377	—	D09(RS2)
3. Compare and contrast ether and halothane.	377	—	D05
4. Classify inhalational general anesthetic drugs. Describe the stages of general anesthesia.	377, 373	432, 430	J14
5. Mention intravenous anesthetics. Write their merits and demerits in comparison to volatile anesthetics.	378	432	J07(RS2)
6. Inhalational anesthetic agents.	378	432	J10(RS2), D16(RS3)
7. Advantages and disadvantages of nitrous oxide.	378	435	D09, D14
8. Halothane (advantages and disadvantages).	379	436	D15(RS3), J00, J02, D02, J11
9. Intravenous anesthetics.	381	438	D99
10. IV anesthetics for induction of anesthesia.	381	438	D07(RS2), D11(RS2)
11. Merits and demerits of propofol.	382	439	D06
12. Dissociative anesthesia.	383	439	D07, J11, J12, J16
13. Ketamine (uses and advantages).	384	440	J11(RS2), D00, D02, D03, D05, J08, J10, D14, D15
14. Preanesthetic medications (objectives).	385	441	J08(RS2), D10(RS2), J12(RS2), D12(RS3), D13(RS3), J15(RS3), D99, D08, J10, J12, D12
15. Enumerate classes of drugs used for preanesthetic medication giving pharmacological rationale.	386	441	J05

Contd... —

Contd...

	KDTPT	SHRM	
16. Rationale of atropine in preanesthetic medication.	386	441	J11
17. Promethazine in preanesthetic medication.	386	441	D11

**Short Answers**

1. What is neuroleptanalgesia? What are the drugs used for it?	—	440	D06(RS2)
2. Name four inhalational anesthetic agents.	377	432	J16
3. List three intravenous anesthetic agents.	378	432	J05, D08
4. Atropine premeditation is essential before ether anesthesia.	378	441	J00, J03
5. Advantages and disadvantages of halothane as a general anesthetic.	379	436	J06, J07
6. Malignant hyperthermia—mention the drugs causing this condition and outline the treatment.	379	436	D06(RS2), J16
7. Thiopentone sodium has a brief duration of action. Explain.	381	438	D06
8. Thiopentone is restricted used for induction of general anesthesia.	381	438	J06
9. Disadvantages of thiopental sodium.	382	438	D15(RS3), D03
10. Dissociative anesthesia.	383	439	J13(RS3), J04
11. Ketamine is the ideal anesthetic for shocked patients.	384	440	J02
12. List the disadvantages of ketamine.	384	440	J05
13. Preanesthetic medication.	385	441	D09(RS2)
14. Mention three drugs used in preanesthetic medication.	386	441	J16(RS3)
15. Use of atropine (anticholinergics) for preanesthetic medication.	386	441	J14(RS3), D05

**CHAPTER 28****ETHYL AND METHYL ALCOHOL****Short Essays**

1. Management of chronic alcoholism.	393	487	J02, D05
2. Mention drugs used for alcohol de-addiction. Explain their mechanism of action and enumerate adverse effects.	393	487	J07(RS2)
3. Disulfiram (mechanism of action).	394	484	J10(RS2), J04
4. Disulfiram in chronic alcoholism.	394	487	D07(RS2)

Contd... —

Contd...

	KDPT	SHRM	
5. Management of methanol poisoning.	395	488	D10
6. Discuss the rationale in the use of ethyl alcohol for the treatment of methanol poisoning.	395	488	J05
<b>Short Answers</b>			
1. Mention two antimicrobial agents producing antabuse like reaction.	391	488	J10
2. Two uses of ethyl alcohol.	394	488	D99, D08, D09
3. Naltrexone is used in chronic alcoholism.	393	487	J07
4. Disulfiram.	394	484	D11
5. Rationale for use of disulfiram in chronic alcoholism.	394	484	D14(RS3), J00, J03, D06, J10, J11, D13, J15
6. Treatment of methyl alcohol poisoning—explain.	395	488	D11(RS2), D16(RS3)
7. Mention two drugs used in methanol poisoning and explain the basis for their use.	395	488	D13(RS3)
8. Rationale for use of ethyl alcohol in methyl alcohol poisoning.	395	488	J15(RS3), D15(RS3), J01, J08, D12, D15, D16

**CHAPTER 29****SEDATIVE-HYPNOTICS****Long Essays**

- |                                                                                                                                                                             |               |               |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------|
| 1. Classify the benzodiazepines. Explain their mechanism of action pharmacokinetics and therapeutic uses. Mention their advantages over barbiturates as sedative hypnotics. | 398, 402, 401 | 442, 443, 445 | J02      |
| 2. Enumerate benzodiazepines. Write briefly the mechanism of action, uses and adverse effects of diazepam.                                                                  | 398, 402      | 442, 443, 445 | D08, J09 |

**Short Essays**

- |                                                                                                            |     |     |                                                  |
|------------------------------------------------------------------------------------------------------------|-----|-----|--------------------------------------------------|
| 1. Treatment of acute barbiturate poisoning.                                                               | 401 | 449 | D01                                              |
| 2. Benzodiazepines (diazepam) – mechanism of action, adverse effects, therapeutic uses, contraindications. | 401 | 442 | J11(RS2), D11(RS2), J14(RS3), D09, J12, J15, D15 |

Contd...



Contd...

	KDTP	SHRM
<b>Short Answers</b>		
1. What is a sedative? Give two examples.	397	443 D99
2. Role of barbiturates in kernicterus.	400	449 D15(RS3)
3. Urine should be alkalized in the management of acute barbiturate poisoning.	401	449 J02, J03
4. Benzodiazepines (diazepam) are preferred to barbiturates (phenobarbitone) as sedatives hypnotics.	401	443 D13(RS3), D14(RS3), J01, J06, D07, J10, J12, D13, D14
5. Advantages of benzodiazepines over barbiturates.	401	443 D16(RS3)
6. Diazepam is less effective by intramuscular (IM) route.	404	— D01, D04
7. Diazepam.	401	444 D07(RS2)
8. Non-benzodiazepine hypnotics (mention four).	406	446 J12(RS2), D15
9. Uses of diazepam (benzodiazepines).	407	444 D09(RS2), J14, J16
10. Mention three uses and two adverse effects of diazepam.	407	444 J16(RS3)
11. Name benzodiazepine antagonist.	408	444 D99
12. Flumazenil.	408	444 J11(RS2), J05
13. Flumazenil is used in benzodiazepine over dosage.	409	444 D02, J07

**CHAPTER 30****ANTIEPILEPTIC DRUGS****Long Essays**

- Classify antiepileptic drugs with examples for each group. Describe the mechanism of action, adverse effects, drug interaction and therapeutic indications for the use of diphenyl hydantoin/phenytoin sodium. 412, 413 520, 523 J07(RS2), D12(RS3), J13(RS3), D14(RS3), J00, J06, D09
- Classify antiepileptic drugs. Explain pharmacological actions, adverse effects and uses of carbamazepine. 412, 415 520, 526 D08(RS2)

**Short Essays**

- Phenytoin sodium—mechanism of action, adverse effects, therapeutic uses. 413 523 D09(RS2), D13(RS3), D16(RS3), D01, D02, D04, J16

Contd... —

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	KDTPT	SHRM	
2. Carbamazepines—mechanism of action, therapeutic uses and adverse reactions.	415	526	J12(RS2), J14(RS3), J08, J15
3. Sodium valproate—mechanism of action, adverse effects and therapeutic uses.	417	528	D15(RS3), J03, D06, D07, J12, D14, D16
4. Newer antiepileptic agents.	420	529	D08(RS2), J16(RS3), J11
5. Drug treatment of absence seizures.	423	527	D07(RS2)
6. Drug therapy of status epilepticus.	424	—	J10(RS2), D03, J09, J10, D11, D13

**Short Answers**

1. Two therapeutic uses of phenobarbitone.	413	526	D05
2. Uses and adverse effects of phenytoin.	414	523	J04, J08, D12, J13, J15
3. Carbamazepine—indications for use and side effects.	416	526	D06(RS2), J00, D08, D10
4. Sodium valproate.	417	528	J08(RS2)
5. Write the mechanism of action of sodium valproate.	417	528	D12
6. Valproic acid is used in absence seizures.	417	528	J01
7. Sodium valproate is not suitable for children under 2 years.	417	529	J02
8. Indicate two uses for sodium valproate.	417	528	D09
9. What is lamotrigine?	419	531	D99
10. Name two drugs used in the treatment of simple partial seizures.	421	525	D15
11. Name two drugs useful in petit mal epilepsy.	421	520	D05, D10
12. Drugs used in status epilepticus.	424	—	J14
13. Rationale of use of diazepam in status epilepticus.	424	445	J11

**CHAPTER 31****ANTIPARKINSONIAN DRUGS****Long Essay**

1. Classify antiparkinsonian drugs. Explain pharmacological action, adverse effects, drug interactions and uses of levodopa.	425, 426	534	J10(RS2), J14(RS3), J04, J08, D14
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Contd...

Contd...

	KDTP	SHRM	
<b>Short Essays</b>			
1. Mention antiparkinsonism drugs. Give rationale of combining carbidopa with levodopa.	425, 429	534	J14
2. Levodopa (L-dopa).	426	534	J08(RS2), J12(RS2), J16(RS3), D12, J13, D16
3. Outline how L-dopa helps in the treatment of parkinsonism.	426	534	J05, D10
4. On/off phenomenon during levodopa therapy.	429	534	D99
5. Dopamine agonists in parkinsonism.	430	538	D07(RS2)
<b>Short Answers</b>			
1. Levodopa is not useful in drug-induced parkinsonism—give reasons.	—	534	D15(RS3), J01, D01, J03, D04
2. Name two drugs producing parkinsonism.	425	532	D09
3. Enumerate three classes of drugs used in parkinsonism.	425	532	D03
4. Explain the mechanism of action of levodopa in parkinsonism.	426	534	D13
5. Levodopa and not dopamine in Parkinson's disease—explain.	426	534	J07
6. Explain contraindications for the use of levodopa with pyridoxine in the treatment of parkinsonism.	429	537	J07(RS2)
7. Why is levodopa combined with carbidopa in parkinsonism?	429	534	D12(RS3), D14(RS3)
8. Dopaminergic agonists in parkinsonism.	430	538	D11(RS2)
9. Selegiline.	431	538	J13(RS3)
10. Mention two COMT (Catechol-O-methyl transferase) inhibitors in the treatment of Alzheimer's disease. Mention two adverse effects.	432	—	D06(RS2)
11. Name two atropine substitutes used in parkinsonism.	433	539	J00

**CHAPTER 32****DRUGS USED IN MENTAL ILLNESS:  
ANTIPSYCHOTIC AND ANTIMANIC DRUGS****Long Essay**

1. Classify antipsychotic drugs. Write mechanism of action, actions, therapeutic uses and adverse effects of chlorpromazine?

Contd... —

Contd...

	KDTP	SHRM	
<b>Short Essays</b>			
1. Chlorpromazine.	437	453	D14(RS3)
2. Mechanism of action of chlorpromazine.	437	453	J09
3. What are atypical antipsychotics? Mention examples of advantages over the older ones.	441	453,454	D06(RS2)
4. Atypical antipsychotics.	441	454	D10(RS2), D12(RS3), D16(RS3), D07, D16
5. Mechanism of action and side effects of clozapine.	441	454	D09
6. Adverse effects of chlorpromazine.	443	458	D09
7. Drug-induced parkinsonism.	444	458	J01, D04, D11
8. Therapeutic uses of chlorpromazine.	445	455	D10
9. Lithium carbonate.	447	469	J11(RS2), D11(RS2), D12, D13, J15, D15
<b>Short Answers</b>			
1. Mention two antipsychotic agents and two uses.	436	453	D11
2. Phenothiazines in schizophrenia (mechanism of action).	437	453	J12
3. Chlorpromazine produces parkinsonism.	444	458	J01
4. State reasons—chlorpromazine is an antiemetic but is not useful in motion sickness.	447	456	D06(RS2)
5. Name four atypical antipsychotic agents.	441	453	J16
6. Mention two uses for haloperidol.	441	455	D10
7. Enlist two important adverse effects of clozapine.	441	457	J08
8. Clozapine is less likely to cause extra- pyramidal toxicity.	441	458	J02
9. Risperidone.	441	454	J12(RS2)
10. Four adverse effects of phenothiazines.	443	457	D07, J15
11. Drug-induced parkinsonism.	444	458	D07
12. Treatment of drug-induced parkinsonism.	444	458	J12
13. Uses of chlorpromazine.	445	455	J11
14. Treatment of schizophrenia.	445	455	D09(RS2)

Contd... —

Contd...

	KDPT	SHRM	
15. Write mechanism of action of lithium and list two adverse effects.	447	470	J16(RS3)
16. Lithium in bipolar illness (mechanism of action).	447	470	J12
17. List three important side effects of lithium.	449	471	D03
18. Drug interaction between lithium and furosemide.	449	472	J16
19. Explain drug interaction between lithium and thiazide diuretics.	449	472	D16

**CHAPTER 33****DRUGS USED IN MENTAL ILLNESS:  
ANTIDEPRESSANT AND ANTIANXIETY DRUGS****Long Essays**

- |                                                                                                                    |          |               |          |
|--------------------------------------------------------------------------------------------------------------------|----------|---------------|----------|
| 1. Classify antidepressants. Outline the mechanism of action, untoward effects and therapeutic uses of imipramine. | 454, 456 | 462, 463      | J05      |
| 2. Classify antidepressant drugs. Adverse effects of imipramine. Note on newer antidepressants.                    | 454, 459 | 462, 466, 463 | J09(RS2) |

**Short Essays**

- |                                                           |     |     |                                                      |
|-----------------------------------------------------------|-----|-----|------------------------------------------------------|
| 1. Cheese reaction.                                       | 455 | 469 | D06                                                  |
| 2. Tricyclic antidepressants.                             | 455 | 463 | J15(RS3), J16                                        |
| 3. Imipramine.                                            | 455 | 463 | D13(RS3), J03                                        |
| 4. Uses and adverse effects of tricyclic antidepressants. | 459 | 466 | J12(RS2)                                             |
| 5. Selective serotonin reuptake inhibitors (SSRI).        | 460 | 463 | J08(RS2),<br>D10(RS2),<br>J16(RS3), J02,<br>D10, J13 |
| 6. Advantages of selective serotonin reuptake inhibitors. | 460 | 467 | J09                                                  |

**Short Answers**

- |                                                                                        |     |     |     |
|----------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Name two newer antidepressants.                                                     | 454 | 462 | J00 |
| 2. Enumerate three classes of drugs used in therapy of depression.                     | 454 | 462 | D03 |
| 3. Contraindications of monoamine oxidase (MAO) inhibitors.                            | 455 | 469 | D99 |
| 4. Write the mechanism of action and two adverse effects of tricyclic antidepressants. | 456 | 463 | D16 |
| 5. List two important side effects of imipramine.                                      | 459 | 466 | D03 |

Contd...

Contd...

	KDPT	SHRM
6. Give examples of newer antidepressants drugs and mention two advantages over the older ones.	460	467 J07(RS2)
7. Advantages of selective serotonin reuptake inhibitors (fluoxetine) over tricyclic antidepressants (imipramine).	460	467 J14(RS3), D16(RS3), D01, D04, J07, J08
8. Mention two selective serotonin reuptake inhibitors and its uses.	460	463 D12
9. Fluoxetine.	461	463 D07(RS2), D08(RS2)
10. What is fluoxetine?	461	463 D00
11. Specify two drugs indicated for endogenous depression.	463	465 D09
12. Imipramine is used for nocturnal enuresis in children. Give reasons.	464	466 D00, D02, J06
13. Outline the mechanism of anti-anxiety and action of diazepam.	465	443 J05
14. Lorazepam.	466	443 J09(RS2)

**CHAPTER 34****OPIOID ANALGESICS AND ANTAGONISTS****Long Essays**

- |                                                                                                                                                               |                         |               |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|--------------------|
| 1. Classify opioid analgesics. Write the pharmacological effects, therapeutic uses, adverse effects and contraindications of morphine.                        | 474, 469, 477, 472, 473 | 498, 499      | D11(RS2), D12, J13 |
| 2. Classify opioid analgesics. Explain the pharmacological actions of morphine on central nervous system and smooth muscles with their clinical implications. | 474, 469, 471           | 498, 499, 503 | D13(RS3)           |

**Short Essays**

- |                                                                       |     |     |                    |
|-----------------------------------------------------------------------|-----|-----|--------------------|
| 1. Differences between morphine and pethidine.                        | —   | —   | J02                |
| 2. Pharmacological actions and uses of morphine.                      | 469 | 499 | J10(RS2)           |
| 3. Actions of morphine on central nervous system.                     | 469 | 499 | D14(RS3)           |
| 4. Acute morphine poisoning and contraindications for morphine usage. | 472 | 504 | J09(RS2), J16(RS3) |
| 5. Uses and adverse effects of morphine.                              | 473 | 503 | D12(RS3), J16      |
| 6. Therapeutic uses and contraindications of morphine.                | 473 | 503 | J12                |

Contd... —

Contd...

	KDTP	SHRM	
7. Name morphine congeners. Side effects and uses of pethidine.	474	500	D08(RS2)
8. Synthetic opioid agonists.	475	505	J11(RS2)
9. Therapeutic uses and adverse effect of pethidine.	475	503	D00
10. Rationale in the use of methadone in opiate addicts.	476	515	D03
11. Opioid antagonists.	483	505	D06, D13
12. Naloxone.	483	506	D99
<b>Short Answers</b>			
1. Explain briefly the mechanism of action of morphine.	469	495	D10
2. Two adverse effects of morphine.	472	503	D99
3. Contraindications of morphine.	473	504	J11(RS2), D09
4. Morphine is contraindicated in head injury.	474	504	J01, D07, J11, D14, D16
5. Two uses of pethidine.	475	503	J00, D10
6. Pethidine is safer than morphine during labor.	475	—	J03
7. Rationale for use of methadone in the treatment of opioid (heroin or pethidine) dependence.	476	515	D06(RS2), J00, D01, D04
8. Tramadol.	477	503	D07(RS2)
9. Rationale of using morphine in left ventricular failure.	478	503	D16(RS3), J06, J10, D15
10. Explain why pentazocine is contraindicated in acute myocardial infarction.	481	505	J07(RS2), J00, D02
11. Opioid antagonists.	483	505	J13(RS3)
12. Name two opioid antagonists? What are their uses?	483	506	J14(RS3)
13. Naloxone.	483	506	J09(RS2)

**CHAPTER 35****CENTRAL NERVOUS SYSTEM STIMULANTS AND COGNITION ENHANCERS****Short Answers**

1. Two drugs used in strychnine poisoning.	486	473	D05
2. Define analeptic. Give one example.	486	473	D03
3. Define analeptics and its uses.	486	473	J10(RS2)
4. Two drugs used in Alzheimer's disease.	489	541	D05, J12
5. Tacrine is used in Alzheimer's disease.	489	541	J07

Contd...

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KDTPT SHRM

## Section VIII: Cardiovascular Drugs

## CHAPTER 36

DRUGS AFFECTING RENIN-ANGIOTENSIN SYSTEM  
AND PLASMA KININS

## Long Essay

- |                                                                                                                                                                                         |          |          |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-----------------------|
| 1. Classify antihypertensive drugs.<br>Discuss the mechanism of action.<br>Pharmacological actions, therapeutic<br>uses and adverse effects of angiotensin<br>receptor blockers (ARBs). | 558, 505 | 261, 256 | J11(RS2),<br>D14(RS3) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-----------------------|

## Short Essays

- |                                                                        |     |     |                                    |
|------------------------------------------------------------------------|-----|-----|------------------------------------|
| 1. Angiotensin-converting enzyme (ACE) inhibitors.                     | 500 | 254 | J13(RS3), D12                      |
| 2. Mechanism of action of angiotensin II converting enzyme inhibitors. | 500 | 254 | D06                                |
| 3. Name four ACE inhibitors. Mention uses and important side effects.  | 500 | 254 | J09(RS2),<br>J16(RS3), D08,<br>J14 |
| 4. Differences between enalapril and captopril.                        | 501 | —   | J08                                |
| 5. Therapeutic uses and adverse effects of ACE inhibitors.             | 501 | 254 | D09, J15                           |
| 6. Enalapril.                                                          | 502 | 254 | J00, J03, J13                      |
| 7. Uses and adverse effects of lisinopril.                             | 503 | 254 | D13(RS3)                           |
| 8. Angiotensin II receptor blockers (antagonists).                     | 505 | 256 | D07(RS2), D02,<br>D16              |

## Short Answers

- |                                                                                                                  |     |     |               |
|------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Enumerate four angiotensin-converting enzyme inhibitors.                                                      | 500 | 254 | J04, D14, J16 |
| 2. Name two angiotensin-converting enzyme (ACE) inhibitors. Mention two uses and two adverse effects of any one. | 500 | 254 | D12(RS3), D13 |
| 3. Give examples of ACE inhibitors. Mention their therapeutic uses.                                              | 500 | 254 | J07(RS2), D15 |
| 4. Rationale for use of angiotensin-converting enzyme (ACE) inhibitors in hypertension.                          | 500 | 254 | D07           |
| 5. Captopril in hypertension (mechanism of action).                                                              | 500 | 265 | J12           |
| 6. Two important adverse effects of angiotensin-converting enzyme inhibitors.                                    | 501 | 255 | J08           |

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	KDTP	PT	SHRM
7. Explain by giving reasons two contraindications for use of angiotensin-converting enzyme (ACE) inhibitors.	502	255	J15(RS3)
8. ACE inhibitors are contraindicated during pregnancy.	502	255	J02
9. ACE inhibitors are indicated in cardiac failure.	504	254	J01, D02
10. Angiotensin receptor blockers.	505	256	D16(RS3)
11. Losartan.	506	256	D08(RS2)

**CHAPTER 37****CARDIAC GLYCOSIDES AND DRUGS FOR HEART FAILURE****Long Essays**

1. Enumerate the cardiac glycosides. 512 314,315, D02  
Describe the pharmacological actions of digitalis. Mention four pharmacokinetic differences between digitoxin and digoxin.
2. Enumerate the drugs used in the management of heart failure (enumerate cardiac glycosides). 519, 512 313,314 D11(RS2), J00  
Write the mechanism of action, pharmacological effects, pharmacokinetics, adverse effects and therapeutic uses of digoxin.
3. Explain the pharmacotherapy of heart failure. 519 313 J09(RS2)

**Short Essays**

1. Pharmacological (cardiac) actions of digoxin. 512 315 J15(RS3), D09
2. Pharmacological effects and uses of digoxin. 512, 517 315, 317 J12(RS2)
3. Digoxin—mechanism of action, therapeutic uses and adverse effects. 514, 517 314,317 D15(RS3), D01, D07, D14, J16
4. Digitalis (digoxin)—toxicity and its treatment. 516 318 J10(RS2), J11(RS2), J01, D03, J04, D04, J06, J10
5. Fab (fragment antigen-binding) antibodies in digoxin toxicity. 516 319 J11
6. Treatment of congestive cardiac failure. 519 313 D16(RS3)

**Short Answers**

1. Name two drugs contraindicated in congestive cardiac failure. — — J00

Contd... —

Contd.

	KDTPT	SHRM	
2. Give the pharmacological basis for the use of digoxin in heart failure.	512	317	D13(RS3), J16(RS3)
3. Digitalis reduces the heart rate.	512	316	J03
4. Mechanism of action of digoxin/digitoxin.	514	314	J12, J13
5. Two adverse effects of digoxin.	516	318	D12, D13, D16
6. Toxicities of digoxin.	516	318	D10(RS2), J11
7. Treatment of digoxin toxicity.	516	318	J14
8. Specify two indications for digoxin therapy.	516	317	D08
9. Thiazide diuretics increase the cardiac toxicity of digitalis.	517	319	J01
10. Therapeutic uses of digitoxin.	517	317	J06
11. Digitalis in congestive heart failure.	517	317	D09(RS2)
12. Rationale for the use of digoxin in atrial fibrillation.	519	317	J07(RS2), J02, J08, J09
13. Digoxin is used in paroxysmal supraventricular tachycardia.	519	317	J07
14. Mention two/four drugs used in congestive cardiac failure.	519	313	D99, D12, D15
15. Rationale for the use of vasodilators in cardiac failure.	522	323	D14(RS3), D01, D04
16. Phosphodiesterase III inhibitors.	524	320	J11(RS2)

**CHAPTER 38****ANTIARRHYTHMIC DRUGS****Long Essay**

1. Classify the antiarrhythmic drugs. Discuss the cardiovascular actions of verapamil. Mention its therapeutic uses, adverse effects and contraindications. 529, 535 300,308 D01

**Short Essays**

1. Class I(a) antiarrhythmic agents. 528 301 D11
2. Outline the mechanism of antiarrhythmic action of quinidine. Enumerate two important untoward effects. 529 301 J05
3. Classify antiarrhythmic drugs with one example under each. Enumerate uses and disadvantages of lidocaine as an antiarrhythmic drug. 529, 530 300,303 J07(RS2)
4. Class III antiarrhythmic drugs. 533 306 J02
5. Amiodarone as an antiarrhythmic agent. 533 306 D10(RS2)

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	KDTP	SHRM	
6. Mechanism of action of amiodarone.	533	306	J04
7. Drugs in paroxysmal supraventricular tachycardia.	536	309	J08(RS2)
8. Adenosine.	536	308	D06
<b>Short Answers</b>			
1. Quinidine causes paradoxical tachycardia when used alone in atrial fibrillation.	529	301	D06
2. Lidocaine in arrhythmias.	530	303	J12(RS2)
3. Lignocaine is not effective in supraventricular arrhythmias.	530	303	D01, D04, J06
4. Rationale for using lignocaine in ventricular arrhythmias.	530	303	J00, D12
5. Amiodarone.	533	306	J08(RS2), D12(RS3)
6. Amiodarone as an antiarrhythmic agent.	533	306	J12
7. Rationale for the use of verapamil atrial fibrillation.	535	308	D02
8. Adenosine (side effects).	536	308	D11(RS2), J06, D13
9. Name two drugs used in ventricular arrhythmias.	538	309	D00

**CHAPTER 39****ANTIANGINAL AND OTHER ANTI-ISCHEMIC DRUGS****Long Essays**

1. Classify drugs used in angina pectoris with examples for each group. Describe the pharmacological actions, therapeutic uses and adverse effects of any one group of drugs. 540 278, 281 J07(RS2)
2. Classify the antianginal drugs. Explain the mechanism of action, pharmacological actions, pharmacokinetics, adverse effects and the therapeutic uses of organic nitrates (glyceryl trinitrate). 540 278, 279 J10(RS2), J02, J13, D15
3. Classify antianginal drugs. Write the mode of action, pharmacological effects, therapeutic uses and adverse effects of calcium channel blockers. 540, 546 278, 269 J12(RS2)
4. Classify antianginal drugs. Discuss in detail the mechanism of action, adverse effects and uses of nifedipine. 540, 549 278, 283 D09

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	KDTP	SHRM	
5. Classify calcium channel blockers. Describe their pharmacological actions, therapeutic uses and adverse effects.	546	269	J14(RS3)
6. Classify antianginal drugs. Describe the mechanism of actions of nitrates, beta blockers and calcium channel blockers in different types of angina. Add a note on treatment of Prinzmetal angina.	540, 545, 547, 546	278, 279, 283, 284	D09(RS2)

**Short Essays**

1. Classification of antianginal drugs.	540	278	J12
2. Explain the action nitrates in angina pectoris (rationale).	540	282	J01, D04, D10
3. Pharmacological actions/mechanism of action, adverse effects and uses of organic nitrates.	540	281	J14(RS3), J15(RS3), J15
4. Explain basis for use of nitroglycerine in angina pectoris. Enumerate routes of administration and unwanted side effects.	541	282	D06(RS2)
5. Glyceryl trinitrate (nitroglycerine).	542	279	D11(RS2), D12(RS3), D14(RS3)
6. Nitrate tolerance.	542	283	J06
7. Various dosage forms and routes of administration of nitrates.	543	280	D07(RS2)
8. Explain briefly the uses of nitrates.	544	282	J09(RS2)
9. Calcium channel blocking agents (mechanism of action and therapeutic uses).	546	266	D09(RS2), D16(RS3), D99, J11, D13, D14, D16
10. Mechanism of action and therapeutic uses of nifedipine.	549	269	D08
11. Dihydropyridine (calcium channel blockers).	549	269	D00, J01, D04
12. Amlodipine—mechanism of action, uses and contraindications.	549	269	J15(RS3), J14
13. Pharmacotherapy of myocardial infarction.	556	289	D15(RS3)

**Short Answers**

1. Use of coronary vasodilators in diabetes mellitus patients with ischemic heart disease (rationale).	—	—	D04
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	KDTP	SHRM	
2. Name two drugs used in angina pectoris.	540	278	D99
3. Enumerate classes of drugs used for therapy of angina pectoris giving the mechanism.	540	278	J05
4. Mechanism of action of nitrates in angina pectoris.	541	279	J10, J11, J12, D13
5. Rationale for use of nitrates in angina pectoris.	541	279	D12
6. Uses and adverse effects of nitrates.	542	283	J13(RS3), D15(RS3), D08, J09, D14
7. Explain rationality of combining beta-blocker with long-acting nitrate for treatment of classical angina.	544	285	D16
8. Rationale for the use of nitrates in cyanides poisoning.	545	282	D02
9. How is propranolol helpful in a patient of angina pectoris?	545	284	J04
10. What is the basis for use of beta blockers in prophylaxis of angina?	545	284	J14(RS3)
11. Name two calcium channel blockers and two uses of it.	546	269	J10(RS2), D12(RS3)
12. Name two uses of verapamil.	548	284	J15, J16
13. How do verapamil and nifedipine differ in their cardiovascular actions?	548	269	D14(RS3)
14. Two adverse effects of calcium channel blockers.	548	270	J10
15. Verapamil is contraindicated in cardiac failure.	548	271	J01
16. Verapamil is avoided in patients with congestive cardiac failure (rationale).	548	271	D04
17. Drug interaction between verapamil and propranolol.	548	271	D15
18. Propranolol should not be combined with verapamil in angina pectoris.	548	271	J02
19. Nifedipine is used along with atenolol in angina pectoris.	549	270	D06
20. Verapamil is contraindicated in cardiac failure, whereas nifedipine can be safely used. Give reasons.	549	271	D00
21. Nifedipine has no antiarrhythmic action.	549	269	J03
22. Two uses and two adverse effects of nifedipine.	549	270	J12

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Contd...

	KDPT	SHRM	
23. Amlodipine.	549	270	D07(RS2), J07
24. How does amlodipine produce beneficial effect in angina? Explain why it is preferred to nifedipine.	549	269	D13(RS3)
25. Use of nimodipine is subarachnoid hemorrhage (rationale).	550	270	D04, J06, D07
26. Two indications of calcium channel blockers.	550	270	D11
27. Potassium channel openers.	552	271	J14
28. Nicorandil (uses).	552	287	J09(RS2), J11(RS2), J07

**CHAPTER 40****ANTIHYPERTENSIVE DRUGS****Long Essays**

1. Classify antihypertensive drugs. Describe the adverse effects and uses of calcium channel blockers. Add a note on the treatment of hypertensive emergency. 558, 546, 572 261, 270, 274 J16(RS3)
2. Classify antihypertensive drugs with examples for each group. Explain mechanism of action, therapeutic uses and adverse effects of angiotensin-converting enzyme (ACE) inhibitors. 558, 500 261, 254 D06(RS2), J08(RS2), D00, J09
3. Classify antihypertensive drugs. Explain pharmacological actions, adverse effects and uses of ramipril. 558, 503 261, 254 D08(RS2)
4. Classify antihypertensive agents. Write about calcium channel blockers, their uses and adverse effects? 558, 562 261, 269 D05
5. Classify the antihypertensive agents. Write the mechanism of action and adverse effects of sodium nitroprusside. 558, 567 261, 273 D06
6. Classify the drugs used in the treatment of hypertension. Write mechanism of action, adverse reactions and uses of enalapril. Mention drugs used to treat hypertensive crisis. 558, 500, 573 261, 254, 274 D10

**Short Essays**

1. Directly acting vasodilators. 566 271 J10(RS2)
2. Sodium nitroprusside. 567 273 D13(RS3)

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	KDTPT	SHRM	
3. Drugs used for hypertensive emergencies.	573	274	J09(RS2)
4. Management of hypertensive emergency.	573	274	J13(RS3)
<b>Short Answers</b>			
1. Thiazides are used in mild hypertension.	559	264	J03
2. Beta blockers in hypertension.	563	260	D09(RS2)
3. Explain the mechanism of antihypertensive action of beta blockers.	563	260	J15(RS3)
4. Mention two centrally acting anticholinergics.	565	263	J16
5. Name a centrally acting sympatholytic and explain its mechanism of action.	565	263	J13
6. Centrally acting antihypertensives.	565	263	D07(RS2), D15
7. Four salient features of clonidine.	565	263	D07
8. What is clonidine? Write the mechanism of its action along with therapeutic uses.	565	263	J07(RS2)
9. How does clonidine produce its antihypertensive effect? What will happen if clonidine therapy is stopped abruptly?	565	263,175	J14(RS3)
10. Clonidine should not be withdrawn suddenly in hypertensive patients.	565	263	D01, D02, D04
11. Clonidine and alpha methyl dopa should not be used together in hypertension.	566	264	J06
12. Name four vasodilators.	566	271	J15
13. Vasodilators used as antihypertensive agents.	566	271	J14
14. Hydralazine caused an increase in heart rate in hypertensive patients when used alone.	566	272	J07
15. Give four salient features of minoxidil.	567	272	J08
16. Two uses of minoxidil.	567	272	D99
17. Topical minoxidil is used in male pattern alopecia.	567	272	D06
18. Diazoxide is used in hypertensive emergencies.	567	273	J07
19. Sodium nitropruside.	567	273	J12(RS2), D15(RS3), D11
20. Reserpine induces extrapyramidal side effects.	568	196	J03
21. Name two antihypertensive drugs contraindicated in pregnancy.	572	275	D10

Contd... —

Contd.

	KDTP	SHRM	
22. Name two antihypertensive drugs safe for pregnancy.	572	275	D08
23. Captopril was used to treat a patient with pregnancy-induced hypertension. Comment.	572	255	J04
24. Treatment of hypertensive emergencies.	572	274	D11(RS2)
25. List two/six drugs used in hypertensive emergencies.	573	276	D10(RS2), D06, J08, D14
26. List two drugs used in hypertensive emergencies outlining the mechanism.	573	276	J04, D16

## Section IX: Drugs Acting on Kidney

## CHAPTER 41

## DIURETICS

## Long Essays

- |                                                                                                                                                                   |          |          |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------------|
| 1. Classify diuretics. Discuss the pharmacology of loop diuretics.                                                                                                | 579      | 226      | D99                |
| 2. Classify diuretics. Describe the mechanism of action, pharmacological actions, therapeutic uses and adverse effects of furosemide.                             | 579      | 226      | J13(RS3), D13(RS3) |
| 3. Classify diuretics giving suitable examples from each class. Enumerate therapeutic uses of thiazide diuretics. What are the complications of diuretic therapy? | 579, 584 | 226, 229 | D07                |

## Short Essays

- |                                                                      |     |     |               |
|----------------------------------------------------------------------|-----|-----|---------------|
| 1. High ceiling diuretics (loop diuretics)                           | 579 | 227 | J08, D11      |
| 2. Furosemide.                                                       | 579 | 227 | D05, D09, J13 |
| 3. Mechanism of action and adverse effects of furosemide.            | 579 | 227 | D16           |
| 4. Mechanism of action and therapeutic uses of furosemide.           | 579 | 227 | J01, D04, D14 |
| 5. Therapeutic uses and adverse effects of furosemide.               | 581 | 228 | D02, J16      |
| 6. Mechanism of action of hydrochlorothiazide as a diuretic.         | 582 | 229 | J04           |
| 7. Thiazide diuretics—mechanism of action, uses and adverse effects. | 582 | 230 | D12, D15      |
| 8. Therapeutic uses and adverse effects of chlorothiazide.           | 584 | 230 | J00           |

Contd. —



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	KDTPT	SHRM	
9. Therapeutic uses and adverse effects of thiazide diuretics.	584	230	D14(RS3), D16(RS3), D08, J15
10. Complications (long-term) of diuretic therapy.	584	231	D10(RS2), J11(RS2), J10, J11
11. What is diuretic resistance? What are the approaches to overcome diuretic resistance?	586	—	J16(RS3)
12. Potassium sparing diuretics.	587	232	J08(RS2), D08(RS2), J14(RS3), J03, D03, J06, D10, D13
13. Name potassium-sparing diuretics. Describe mechanism of action, uses and side effects of these drugs.	587	232	J07(RS2)
14. Mechanism of action and therapeutic uses of potassium-sparing diuretics.	587	232	D15(RS3), J09
15. List potassium sparing diuretics—enumerate their therapeutic uses.	587	232	J05, J12
16. Osmotic diuretics.	590	234	D09(RS2), D12(RS3)
17. Uses of mannitol.	591	235	J07
<b>Short Answers</b>			
1. Two difference between hydrochlorothiazide and amiloride.	—	230	J09
2. Why furosemide and amiloride are combined?	—	233	J12
3. Enumerate high ceiling diuretics and their therapeutic indications.	579	226	D00
4. Frusemide.	579	227	D08(RS2)
5. Name two potassium-sparing diuretics.	579	232	J00
6. Therapeutic uses of loop diuretics.	581	228	J14
7. Frusemide is used in treatment of hypercalcaemia.	582	228	D06
8. Thiazide diuretics—two uses and two adverse effects.	584	230	D05
9. Rationale for the use of thiazides in diabetes insipidus.	584	230	J02
10. Adverse effects of loop diuretics (frusemide).	584	231	J09(RS2), J14(RS3)
11. Adverse effects of hydrochlorothiazide.	584	231	D03

Contd. —

Contd.

	KDPT	SHRM	
12. Thiazides are contraindicated in patients with diabetes mellitus.	585	231	D01, D04
13. Thiazides are contraindicated in diabetic hypertensives.	585	231	D02
14. Hydrochlorothiazide is contraindicated in diabetes patients. Why?	585	231	D06
15. Acetazolamide.	586	236	J10(RS2), D16(RS3)
16. Acetazolamide has self-limiting diuretic effect.	587	236	D06
17. Spironolactone.	587	232	D07(RS2)
18. Explain how spironolactone spares potassium.	587	232	D14(RS3), J08
19. Spironolactone is used in hepatic cirrhosis with edema.	588	232	D06
20. Explain the drug interaction between hydrochlorothiazide and amiloride.	590	230	D12(RS3)
21. Name one osmotic diuretic. Enumerate two therapeutic indications for its use.	590	234	D03
22. Mannitol (uses).	590	235	D11(RS2), J15(RS3), J16(RS3), J04, J09
23. List two osmotic diuretics giving two therapeutic indications.	590	235	J05
24. Uses of diuretics	581, 584, 587, 588, 591	228, 230, 232, 233, 235	J12(RS2)

**CHAPTER 42****ANTIDIURETICS****Short Essays**

1. Vasopressin.	593	238	D02
2. Vasopressin analogs.	596	239	J13
3. Desmopressin.	596	239	J06

**Short Answers**

1. Name two antidiuretic preparations.	593	239	D10
2. List two drugs used in the treatment of diabetes insipidus giving the mechanism of action.	593	241	J05, D14

Contd. —

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	KDTP	SHRM	
3. List two drugs used in the therapy of diabetes insipidus.	593	241	J04
4. Uses of vasopressin analogs.	597	240	D12
5. Enumerate uses of vasopressin in therapy.	597	241	D03
6. Specify two uses of desmopressin.	597	241	D08
7. Treatment of diabetes insipidus.	597	241	J10(RS2), D13

## Section X: Drugs Affecting on Blood and Blood Formation

## CHAPTER 43

## HEMATINICS AND ERYTHROPOIETIN

## Short Essays

1. Preparations of iron.	602	656	D00, J03, J13
2. Oral iron preparations and their adverse effects.	603	656	J14
3. Oral iron therapy.	603	656	D15(RS3)
4. Name two preparations of iron for parenteral use. Specify the indications for their use, and their untoward effects. Mention the formula used for calculation of total dose of iron required for parenteral therapy.	603	657	J07(RS2)
5. Parenteral iron therapy.	604	657	D07(RS2), D16(RS3), D14
6. Four indications for parenteral iron therapy.	604	657	D07
7. Parenteral iron preparations.	604	657	J08, J09
8. Treatment of microcytic hypochromic anemia.	605	656	J09(RS2)
9. Treatment of iron toxicity.	606	658	D08(RS2), D08

## Short Answers

1. What are the factors modifying absorption of iron from gastrointestinal tract?	600	655	J15(RS3), J09
2. For oral iron therapy ferrous salts are preferred to ferric salts.	601	656	J01
3. Oral iron preparations.	601	656	J13(RS3), D11
4. Name the iron preparation and its adverse effects.	602	656	D12, D16
5. Mention two oral iron preparations and two adverse effects.	603	656	J16

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Contd...

	KDTP	SHRM	
6. Parenteral iron therapy.	604	657	J10(RS2)
7. Name two parenteral iron preparations. What are indications for parenteral iron therapy?	604	657	D14(RS3)
8. Indications for parenteral iron therapy.	604	657	D11(RS2), D06
9. Iron-sorbitol citric acid is not suitable for IV administration.	605	657	D01, D04
10. Hematopoietic growth factors.	606	661	J08(RS2)
11. Vitamin B <sub>12</sub> (cyanocobalamin).	606	658	J09(RS2), J11(RS2)
12. Cyanocobalamin is preferred to hydroxycobalamin for long-term administration.	608	659	D01, D04
13. Treatment of pernicious anemia.	608	659	J11
14. For a patient of pernicious anemia give your drug of choice, its dose, route of administration, duration of treatment.	608	659	J15(RS3)
15. Drug of choice and its route of administration in pernicious anemia.	608	659	J10
16. Pernicious anemia requires life-long therapy with vitamin B <sub>12</sub> .	608	659	J01
17. In pernicious anemia vitamin B <sub>12</sub> is not given by mouth. Give reasons.	609	659	D00, D02
18. Folic acid.	609	660	D07(RS2)
19. Folic acid alone is contraindicated in patients with pernicious anemia.	610	661	J00, D01, D04, D06
20. Erythropoietin.	611	661	J12(RS2)

**CHAPTER 44****DRUGS AFFECTING COAGULATION, BLEEDING AND THROMBOSIS****Long Essay**

- |                                                                                                                                                 |               |               |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------|
| 1. Classify anticoagulants. Explain the mechanism of action, uses and adverse effects of warfarin. Add a note on low molecular weight heparins. | 617, 620, 619 | 676, 680, 677 | D12(RS3) |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------|

**Short Essays**

- |                                                                              |     |     |                         |
|------------------------------------------------------------------------------|-----|-----|-------------------------|
| 1. Outline the rationale in the use of phytonadione for warfarin overdosage. | 615 | 680 | J05                     |
| 2. Heparin—mechanism of action, pharmacological actions and uses.            | 617 | 676 | J14(RS3), D09, D11, D12 |
| 3. Low dose heparin therapy.                                                 | 619 | 677 | D04                     |

Contd...

Contd...

	KDTP	SHRM	
4. Low molecular weight heparins.	619	677	J08(RS2), D13(RS3), J10, D14
5. Compare and contrast heparin with low molecular weight heparins. Mention the antagonist for heparin overdose.	619	—	J07(RS2)
6. Oral anticoagulants.	620	680	D09(RS2), J11(RS2), J13(RS3), J00, D02, D13
7. Treatment of heparin overdosage.	620	679	D03
8. Warfarin sodium—mechanism of action and its antagonist.	620	680	D16
9. Mechanism of anticoagulant action and uses of warfarin sodium.	620	680	D07
10. Coumarin derivatives.	620	680	D99
11. Warfarin sodium.	621	680	J12(RS2), J15(RS3), J15
12. Treatment of dicoumarol induced bleeding.	622	—	J04
13. Indications and contraindications of oral anticoagulants.	623	681	J08
14. Drugs used in deep vein thrombosis.	624	681	J12
15. Compare and contrast heparin and warfarin.	624	—	D08, J16
16. Fibrinolytics (thrombolytics)—mechanism of action adverse effects and uses.	625	682	D06(RS2), J09(RS2), D11(RS2), D00, J01, D04, D05, J07, J14
17. Mention plasminogen activators with their therapeutic indications and side effects.	626	682	D06(RS2)
18. Enumerate fibrinolytic inhibitors. List their therapeutic uses.	628	682	J05
19. Antiplatelet agents (mechanism of action/uses).	629	683	D08(RS2), J16(RS3), J06, J10, D12, D13

**Short Answers**

1. Antidotes to anticoagulants.	615	675	D07(RS2)
2. Therapeutic uses of vitamin K.	615	675	J09, J13
3. List two uses of phytonadione (vitamin K <sub>3</sub> ).	615	675	J04

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	KDTPT	SHRM	
4. Write two uses and two adverse effects of heparin.	618	677	D15
5. Mention two adverse effects of heparin.	618	682	D08
6. Low molecular weight heparins.	619	677	D10(RS2), D16(RS3)
7. What are advantages of low molecular weight heparins?	619	677	D14(RS3), J16(RS3), J09
8. Name two low molecular weight heparins and their advantages over heparin.	619	677	D16
9. Name heparin antagonist. What is its source?	620	679	D00
10. Oral anticoagulants.	620	680	J10(RS2), D11
11. Warfarin is not effective in vitro as anticoagulant.	620	680	D06
12. Mechanism of action of dicoumarol.	620	680	D03
13. Warfarin.	621	680	D08(RS2)
14. Heparin is quick acting but not warfarin sodium.	621	680	J02
15. Antidote for warfarin sodium overdosage.	622	680	J09
16. Heparin is preferred to warfarin as anticoagulant during pregnancy.	623	682	J02
17. Phenobarbitone reduces the efficacy of warfarin sodium.	623	680	D02
18. Drug interaction between warfarin and aspirin.	623	680	J10
19. Mention four differences between warfarin and heparin.	624	—	J13
20. Rationale for use of heparin in deep vein thrombosis.	624	681	D07, J08
21. Name two fibrinolytic agents and their uses.	626	682	D05, D08, J09, J13
22. Streptokinase.	626	682	D10, D11
23. Contraindications for streptokinase therapy.	626	682	D04
24. Mention two enzymes used in myocardial infarction.	626	682	J12
25. Streptokinase is administered in acute myocardial infarction.	626	682	J03
26. List two fibrinolytic inhibitors.	628	682	D03, D06
27. Tranexemic acid.	628	676	J10(RS2)

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	KDTP	SHRM	
28. Name two antithrombotic agents. Explain the mechanism of action of any one.	629	677	D13(RS3)
29. Name four antiplatelet drugs.	629	683	D09, J15, D15
30. Explain how low dose of aspirin prevents aggregation of platelets.	629	365	J14(RS3)
31. Aspirin is used in low doses for the secondary (chronic) prophylaxis of myocardial infarction.	629	365	D01, D02, D04
32. Rationale of prophylactic aspirin use in myocardial infarction.	629	365	J09(RS2)
33. Use of aspirin in myocardial infarction.	629	365	J07
34. Clopidogrel.	630	685	J08(RS2), D11(RS2)

**CHAPTER 45****HYPOLIPIDEMIC DRUGS AND PLASMA EXPANDERS****Short Essays**

1. HMG-CoA (3-hydroxy-3-methyl-glutaryl-coenzyme A) reductase inhibitors.	636	329	J12(RS2)
2. Mechanism of action and therapeutic uses of lovastatin.	636	329	J03, D10
3. Atorvastatin.	637	329	D15(RS3)
4. Simvastatin.	637	329	D07
5. Adverse effects of statin.	637	331	J07
6. Treatment for hypercholesterolemia.	644	329	D09(RS2)
7. Plasma expanders.	644	898	J09(RS2), J11(RS2), J13(RS3), D00, D02, D04, D15
8. Properties of an ideal plasma expander.	644	898	J10
9. Plasma substitutes in shock.	644	898	D07(RS2)
10. Dextran.	645	898	D13

**Short Answers**

1. Name two hypolipidemic drugs. Mention two adverse effects of any one.	635	329	D08, D13, J15, J16
2. Lovastatin.	637	329	D08(RS2)
3. Rosuvastatin.	637	329	J11(RS2)
4. Indications of statins.	638	331	D04
5. Gemfibrozil.	639	333	D07(RS2)
6. Fenofibrate.	639	333	J08(RS2)
7. Plasma expanders.	644	898	J00, J11, J14

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KDTPT SHRM

## Section XI: Gastrointestinal Drugs

## CHAPTER 46

## DRUGS FOR PEPTIC ULCER

## Long Essay

1. Classify the drugs used in peptic ulcer. 649, 651 384, 388 J02  
Explain the mechanism of action and therapeutic uses of proton pump inhibitors.

## Short Essays

1. Drug therapy of peptic ulcer. 648 384 J11(RS2), J11, D11, J14
2. Drugs reducing gastric acid secretion in peptic ulcer. 649 384 D13
3. H<sub>2</sub> receptor antagonists. 649 386 J10(RS2), D13(RS3), J16(RS3)
4. Ranitidine. 650 386 J01
5. Proton pump inhibitors. 651 387 D07(RS2), D08(RS2), D11(RS2), J13(RS3), D14(RS3), J15(RS3), D16(RS3), D02, D07, J12, D14, D16
6. Name proton pump inhibitors. Write their mechanism of action and their uses with two adverse effects. 651 387 D06(RS2)
7. Omeprazole. 651 388 D99, J07, D10
8. Pantoprazole. 653 387 D15(RS3)
9. Antacids. 654 384 J16
10. Nonsystemic antacids. 654 385 J00, J10
11. Ulcer protective drugs. 656 391 J07(RS2)
12. Sucralfate. 656 391 D00, J03, J15
13. Drugs effective against *H. pylori*. 657 393 D12(RS3), D01
14. Triple regime for *Helicobacter pylori* infection in peptic ulcer treatment. 657 393 D15
15. Treatment of gastroesophageal reflux disease (GERD). 658 389 J12(RS2)

## Short Answers

1. Name three H<sub>2</sub> receptor blockers and three indications for their use. 649 387 D06(RS2)

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	KDTP	SHRM	
2. Two adverse effects of cimetidine.	650	387	D99
3. Explain the disadvantages of cimetidine.	650	387	J05
4. Ranitidine is preferred to cimetidine in peptic ulcer.	650	387	D01
5. Ranitidine is preferred to cimetidine in clinical practice. Give the reason.	650	387	J07(RS2)
6. How does cimetidine differ from ranitidine?	650	387	J04, D12
7. Rationale for use of ranitidine in peptic ulcer.	650	387	J09
8. Proton pump inhibitors.	651	387	D10(RS2)
9. Name two proton pump inhibitors and write two uses.	651	387	J16
10. Omeprazole.	651	388	J08(RS2)
11. Mechanism of action of omeprazole.	651	388	D03
12. Specify two adverse effects of omeprazole.	653	389	D09
13. Misoprostol.	654	391	D09(RS2)
14. Rationale of using prostaglandin analogs in peptic ulcer.	654	391	D13
15. Misoprostol as antiulcer agent.	654	391	D15
16. Misoprostol is the most suitable drug for the peptic ulcer induced by NSAIDs.	654	391	J00
17. Uses of misoprostol.	654	391	D03
18. As antacids, magnesium trisilicate and aluminum hydroxide are used in combination. Give reasons.	655	385	J03
19. Rationale for combination of antacids in peptic ulcer therapy.	655	385	J05
20. Rationale of using sucralfate in peptic ulcer.	656	391	J13
21. Explain the interaction between sucralfate and antacids.	656	392	D12
22. Why are antacids not given along with sucralfate in peptic ulcer?	656	392	D10
23. Enumerate the drugs used for eradication of <i>Helicobacter pylori</i> infection.	657	393	D03
24. Triple drug regimen—give details in peptic ulcer.	657	393	D05
25. Name two drugs used in reflux esophagitis.	659	400	D08

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KDTPT SHRM

## CHAPTER 47

DRUGS FOR EMESIS, REFLUX  
AND DIGESTIVE DISORDERS

## Short Essays

1. Antiemetics.	662	395	J12
2. List three classes of antiemetic agents and outline their mechanism of action.	662	395	J04
3. Cinnarizine.	663	396	J03
4. Drugs in motion sickness.	664	395	J10(RS2)
5. Prokinetic agents.	664	399	J09(RS2), D10(RS2), J11(RS2), D99, D01, J05, D12, J13
6. Metoclopramide.	664	400	D07(RS2), J16(RS3), J07, J10, D15
7. Rationale behind the therapeutic use of metoclopramide in gastrointestinal reflux disease.	665	400	D03
8. Cisapride.	667	400	D00, J03
9. Ondansetron—actions and uses.	668	397	D13
10. Treatment of cancer chemotherapy-induced vomiting.	668	397	J06

## Short Answers

1. List three classes of antiemetic drugs.	662	395	D03
2. Name two antiemetics.	662	395	J15
3. Rationale for using hyoscine in motion sickness.	663	395	J02
4. Drugs used in motion sickness.	664	395	J12(RS2)
5. What are prokinetic agents? Give two examples.	664	399	D10
6. Metoclopramide.	664	400	J08(RS2), J13(RS3), D13(RS3)
7. Metoclopramide is used as an antiemetic. Give reasons.	664	400	J01
8. Mention two uses and two adverse effects of metoclopramide.	666	400	D16
9. Metoclopramide can cause extrapyramidal symptoms. Explain.	666	400	J07(RS2)

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	KDTP	SHRM	
10. Side effects of metoclopramide.	666	400	D04, D05, D08, D09
11. Domperidone.	666	398	J10(RS2), D15(RS3)
12. Advantages of domperidone over metoclopramide.	666	398	J15(RS3)
13. Domperidone is preferred to metoclopramide in levodopa-induced vomiting in Parkinsonian patients.	666	398	J06
14. Rationale of using cisapride as antiemetic.	667	400	D02
15. Uses of cisapride.	667	400	J06
16. Ondansetron.	668	397	D09(RS2), D13(RS3), D16(RS3), D10
17. Mechanism of action and use of ondansetron.	668	397	J13
18. Ondansetron is preferred in the treatment of vomiting induced by anticancer drugs.	668	397	D01
19. Use of ondansetron in vomiting (rationale).	668	397	D04

**CHAPTER 48****DRUGS FOR CONSTIPATION AND DIARRHEA****Long Essay**

- |                                                                                |     |     |     |
|--------------------------------------------------------------------------------|-----|-----|-----|
| 1. Outline the mechanism of action of drugs used in treatment of constipation. | 672 | 404 | D06 |
|--------------------------------------------------------------------------------|-----|-----|-----|

**Short Essays**

- |                                                           |     |     |               |
|-----------------------------------------------------------|-----|-----|---------------|
| 1. Merits and demerits of emollient laxatives.            | 673 | 405 | J09           |
| 2. Liquid paraffin.                                       | 673 | 405 | D04           |
| 3. Stimulant purgatives.                                  | 674 | 406 | D13           |
| 4. Bisacodyl.                                             | 674 | 406 | D05, J08      |
| 5. Osmotic purgatives.                                    | 675 | 406 | D12(RS3), D08 |
| 6. Oral rehydration therapy.                              | 679 | 409 | J09(RS2)      |
| 7. Composition of oral rehydration solution and its uses. | 680 | 409 | J10           |
| 8. Antimotility agents.                                   | 686 | 407 | J00           |

**Short Answers**

- |                                                         |     |     |     |
|---------------------------------------------------------|-----|-----|-----|
| 1. List three/four classes of purgatives with examples. | 672 | 406 | J04 |
|---------------------------------------------------------|-----|-----|-----|

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	KDTP	SHRM	
2. Name four laxatives.	672	404	D12
3. Name two osmotic (saline) purgatives. Give two indications for their use.	672	406	D99, J03, D10
4. Name two osmotic purgatives and list their contraindications.	672	406	J13
5. Drawbacks of liquid paraffin as purgative.	673	405	D00
6. Bisacodyl.	674	406	J15(RS3)
7. Castor oil as purgative—explain the mechanism of action.	675	406	D15
8. Name an osmotic purgative. Give its indications.	675	406	J16(RS3)
9. Lactulose.	676	405	D09(RS2), J14(RS3), D15(RS3)
10. Rationale for the use of lactulose in hepatic coma.	676	405	D16
11. ORS solution.	679	409	D13
12. What are the advantages of oral rehydration therapy in a case of diarrhea?	680	409	J16(RS3)
13. Name two drugs used in cholera.	682	—	J08
14. Specify two drugs used in bacillary dysentery.	682	—	J08
15. Name two drugs used in ulcerative colitis.	683	410	D99
16. Sulfasalazine.	683	410	J15(RS3)
17. Mesalamine.	684	411	J10(RS2), J14(RS3)
18. List two drugs used in nonspecific diarrhea.	685	407	D15
19. Name two antimotility drugs.	686	407	J15
20. Loperamide should not be used for infective diarrheas and dysenteries.	687	408	J02
21. Loperamide is contraindicated in infantile diarrhea.	687	408	J06

## Section XII: Antimicrobial Drugs

## CHAPTER 49

## ANTIMICROBIAL DRUGS: GENERAL CONSIDERATIONS

## Long Essays

- |                                                                                                                                |               |     |
|--------------------------------------------------------------------------------------------------------------------------------|---------------|-----|
| 1. Define chemotherapy. Mention indications for the combined use of antibacterial agents giving the pharmacological rationale. | 688, 698 687, | J04 |
|--------------------------------------------------------------------------------------------------------------------------------|---------------|-----|

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	KDTP	SHRM
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- |                                                                                                      |          |              |
|------------------------------------------------------------------------------------------------------|----------|--------------|
| 2. Classify antibiotics depending on their mechanism of action. Discuss in detail about penicillins. | 689, 716 | 689, 716 J12 |
|------------------------------------------------------------------------------------------------------|----------|--------------|

**Short Essays**

- |                                                |     |     |               |
|------------------------------------------------|-----|-----|---------------|
| 1. Drug resistance.                            | 691 | 693 | J11(RS2), D13 |
| 2. Write briefly on bacterial resistance.      | 691 | 693 | J13(RS3)      |
| 3. Mechanism of resistance to antibiotics.     | 691 | 693 | D07           |
| 4. Superinfections with antimicrobial therapy. | 693 | 696 | J07(RS2), D12 |
| 5. Prophylactic use of antimicrobials.         | 700 | —   | D13(RS3)      |

**Short Answers**

- |                                                                                |     |     |          |
|--------------------------------------------------------------------------------|-----|-----|----------|
| 1. Mention two drugs used in anaerobic infection.                              | —   | —   | J08      |
| 2. Name two drugs used in gram-positive infections.                            | —   | —   | D08      |
| 3. Mention two drugs used in <i>Pseudomonas</i> infection.                     | —   | —   | D08      |
| 4. Name two drugs used in <i>Pneumocystis carinii</i> pneumonia.               | —   | —   | D08      |
| 5. Name two drugs which act by inhibiting bacterial protein synthesis.         | 689 | 689 | D15      |
| 6. Name two antimicrobial agents producing anaphylaxis.                        | 691 | —   | D09      |
| 7. What is superinfection? Give two examples.                                  | 693 | 696 | D99, D02 |
| 8. Mention two drugs producing superinfection.                                 | 693 | 696 | J08      |
| 9. Bactericidal antibiotics are preferred in immunosuppressed individual.      | 697 | —   | J06      |
| 10. Write three advantages of fixed dose combination of drugs giving examples. | 698 | 55  | D13(RS3) |

**CHAPTER 50****SULFONAMIDES, COTRIMOXAZOLE AND QUINOLONES****Long Essays**

- |                                                                                                                                                                  |     |     |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|
| 1. What are "fluoroquinolone"? Enumerate them. Describe the mechanism of action, spectrum of activity, adverse effects and therapeutic uses of fluoroquinolones. | 709 | 708 | D07, D13 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----------|

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	KDPT	SHRM	
2. Enumerate quinolones (classify fluoroquinolone). Write mechanism of action, antimicrobial spectrum, and therapeutic uses of ciprofloxacin.	709, 710	709, 710	D09, J14
3. Enumerate the drugs used in gram-negative infections and briefly outline the treatment for typhoid fever.	712	709	J08
<b>Short Essays</b>			
1. Topically used sulfonamide.	705	706	J15
2. Sequential blockade.	706	704	J02, J07
3. Cotrimoxazole—mechanism of action and uses.	706	704	J11(RS2), J13(RS3), D13(RS3), J14(RS3), J16(RS3), D06, J16, D16
4. Pyrimethamine and sulphadoxine combination.	706	704	D05
5. Mechanism of action of ciprofloxacin.	709	708	D00
6. Ciprofloxacin.	710	710	D13(RS3), J14(RS3), J06, J15
7. List the untoward effects and contraindications for use of fluoroquinolones.	710	713	J04
8. Therapeutic uses of fluoroquinolones.	711	710	D11
9. Drugs in typhoid.	712	710	J12(RS2)
10. Norfloxacin.	713	710	D06, D10
11. Ofloxacin.	713	710	D15(RS3)
12. Second generation fluoroquinolones.	713	711	J10(RS2)
13. Sparfloxacin.	714	712	J03
<b>Short Answers</b>			
1. Third generation fluoroquinolones.	—	712	J12(RS2)
2. Name two sulfonamides, which are used topically.	704	704	D99, J03
3. Sulfonamides are less effective in the presence of pus.	705	—	J02, J14
4. Specify two side effects of sulfonamides.	706	707	D08
5. List two clinical uses of sulphonamides.	706	705	D14
6. What is sequential blockade? Give two examples.	706	704	D14(RS3), J10

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	KDTP	SHRM	
7. Cotrimoxazole.	706	704	D07(RS2)
8. Rationale for use of combination of trimethoprim and sulfamethoxazole.	706	704	D06(RS2), J06, J09
9. Explain the mechanism of action of cotrimoxazole.	706	704	J05, D08
10. What is 'sequential block' in the folic acid synthesis?	706	704	J07(RS2)
11. Indications for cotrimoxazole.	708	704	D04
12. Name two fluoroquinolones. Mention two uses.	709	709	D16
13. Mechanism of action of fluoroquinolones.	709	708	J15(RS3)
14. Name four examples of second generation fluoroquinolones and four therapeutic uses.	709	711	D06(RS2)
15. Mention two/four uses and two adverse effects of ciprofloxacin.	710	710	J10, D10, J12, D12
16. Fluoroquinolones (quinolones) are contraindicated in children.	711	713	J11
17. Mention two clinical uses of ciprofloxacin.	711	710	J16
18. Treatment of typhoid.	712	710	D11
19. Treatment of typhoid carriers.	712	710	J13(RS3)
20. Name four/six drugs used in the treatment of typhoid fever with dosages.	712	710	D06(RS2), J14(RS3), D02, D03, J07, J13
21. Name two drugs used in the treatment of chloramphenicol resistant typhoid.	712	706	D15
22. Name two cephalosporins used in enteric fever.	712	710	J12
23. Ofloxacin.	713	710	D08(RS2)
24. Pefloxacin.	713	710	J08(RS2)
25. Gatifloxacin.	714	712	D09(RS2)

**CHAPTER 51****BETA-LACTAM ANTIBIOTICS****Long Essays**

- |                                                                                                                                                      |               |      |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------|---------------|
| 1. Classify penicillins. Write mechanism of action, therapeutic uses and adverse effects of benzyl penicillin. Add a note on repository penicillins. | 721, 716, 719 | 719, | J14(RS3), D00 |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------|---------------|

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	KDPT	SHRM
2. Classify penicillins. Write the mechanism of action, therapeutic uses and adverse effects of penicillin G.	721, 716	720, 721 J13(RS3)
3. Classify penicillin group of antibiotics with examples. Explain the mechanism of action, advantages and limitations of any one parenterally administered group.	721, 716	720, 719 J05
4. Classify penicillins. Outline the disadvantages of benzyl penicillin. List indications for its use in therapy.	721, 719	720, 724, 721 D03
5. Classify the penicillins. List the therapeutic uses of penicillin-G. Describe the method of testing for penicillin allergic reactions.	721, 720, 719	721 J06
6. Classify semisynthetic penicillins. Describe their mechanism of action, adverse effects and indications.	721	719 J13
7. Classify penicillins. Explain mechanism of action, therapeutic uses, adverse effects of ampicillin. Add a note on beta-lactamase inhibitors.	721, 722, 724	720, 722, 724 J11
8. Classify beta lactam antibiotics. Describe the pharmacological actions, adverse effects and uses of ampicillin.	721, 722	724, 722 D14
9. Enlist beta-lactam antibiotics. Write mechanism of action, adverse effects and uses of amoxicillin.	721, 723	724, 722 D08(RS2)
10. Classify beta lactam antibiotics. Explain the pharmacology of second generation cephalosporins. Write a note on aztreonam.	721, 726, 730	720, 727, 731 J12(RS2)
11. Classify cephalosporins. Describe the mechanism of action, spectrum, adverse effects and indications.	725	726 D12(RS3), D13(RS3), D06
12. Classify cephalosporins according to generations based on their antimicrobial activity. Briefly write about their adverse effects and indications.	726	726 J09(RS2)
13. Classify cephalosporins. Describe the antibacterial spectrum, therapeutic uses and adverse effects of third generation cephalosporins.	726, 727	726, 727 D07(RS2), D99, J09

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	KDTP	SHRM	
<b>Short Essays</b>			
1. Compare and contrast penicillins and cephalosporins.	—	—	D10
2. Mechanism of action of penicillin.	716	717	J01
3. Therapeutic uses of penicillin.	720	721	D10(RS2)
4. Semisynthetic penicillins.	720	721	J08(RS2)
5. Semisynthetic penicillins and their therapeutic uses.	720	721	D06(RS2)
6. Therapeutic options for infections by methicillin-resistant <i>Staphylococcus aureus</i> .	721	731	D03
7. Cloxacillin.	721	721	J07
8. Extended spectrum penicillins.	722	722	J00, D02, J09
9. Aminopenicillins.	722	722	D15
10. Ampicillin.	722	722	D12(RS3)
11. Carbenicillin.	723	722	D05
12. Beta lactamase inhibitors.	724	724	J07(RS2), J10(RS2), D14(RS3), J02, J05, J14
13. First generation cephalosporins.	726	726	J08
14. Second generation cephalosporins.	726	727	D09(RS2), J02
15. Third generation cephalosporins.	727	727	D15(RS3), D01, D08, D09, J16
16. Uses and adverse effects of cephalosporins.	729	726,730	D14
17. Carbapenems.	731	731	J15(RS3)
<b>Short Answers</b>			
1. Name drugs used in anaphylactic reaction due to penicillin.	—	725	D99
2. Benzyl penicillin is less effective by oral route.	718	721	D01
3. Drug interaction of probenecid and penicillin.	718	725	D15
4. Rationale for combining probenecid with penicillins (in the management of gonococcal urethritis).	718	725	J11(RS2), J02, D11
5. Explain repository penicillins.	719	—	D05
6. Explain briefly Jarisch-Henxheimer reaction with a suitable example.	720	725	J10, D14
7. Benzathine penicillin in rheumatic fever patients.	720	723	J14

Contd...

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	KDTP	SHRM	
8. Name four penicillinase resistant penicillins.	721	722	J01
9. Name two extended spectrum penicillins.	721	722	J08
10. Mention two adverse effects of ampicillin.	722	724	D09
11. Advantages of amoxicillin.	723	722	D05
12. Amoxicillin is preferred to ampicillin - explain.	723	—	J16(RS3)
13. Use of ampicillin with oral contraceptives can result in contraception failure.	723	—	J06
14. Name two penicillins effective in <i>Pseudomonas</i> infection.	723	723	J03
15. Name two beta lactamase inhibitors. Write their advantages.	724	724	J10, J12, D12, J16
16. Clavulanic acid.	724	724	J08(RS2), J15(RS3)
17. Combinations of clavulanic acid with amoxicillin (rationale).	724	724	J04, D04, J07, D15
18. Advantages of amoxycillin-clavulanic acid combination.	724	724	J06
19. List four first generations cephalosporins.	726	726	J04
20. Enumerate groups of cephalosporins with examples.	726	726	J05
21. Specify two cephalosporins excreted through bile.	726	726	J08
22. List four second generation cephalosporins.	726	727	D03
23. Name two third generation cephalosporins.	726	727	J10
24. Third generation cephalosporins.	727	727	D10(RS2)
25. Third generation of cephalosporins—advantages.	727	728	D04
26. Monobactams—action and uses.	730	731	D11(RS2)
27. Aztreonam.	730	731	J09(RS2)
28. Imipenem (adverse effects).	731	731	D07(RS2), D08
29. Why is imipenem administered with cilastatin?	731	732	D03, J14
30. Meropenem.	731	731	J14(RS3)

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KDTPT SHRM

## CHAPTER 52

## TETRACYCLINES AND CHLORAMPHENICOL

## Long Essay

- |                                                                                                                                    |     |     |               |
|------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Enumerate tetracyclines. Outline their antimicrobial spectrum, mechanism of action, therapeutic uses and their adverse effects. | 733 | 748 | D14(RS3), J04 |
|------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|

## Short Essays

- |                                                                                                                                         |     |     |               |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Doxycycline.                                                                                                                         | —   | 749 | D10(RS2), D07 |
| 2. Mechanism of action of tetracyclines.                                                                                                | 733 | 748 | J03           |
| 3. Adverse effects of tetracycline therapy.                                                                                             | 735 | 750 | J05           |
| 4. Side effects of doxycycline.                                                                                                         | 735 | 750 | J10           |
| 5. Uses and adverse effects of tetracyclines.                                                                                           | 735 | 750 | D09(RS2)      |
| 6. Therapeutic uses of tetracycline.                                                                                                    | 737 | 749 | J06           |
| 7. List three advantages for doxycycline over oxytetracycline. Name two conditions where tetracyclines are used as first line of drugs. | 737 | 749 | D06(RS2)      |
| 8. Newer tetracyclines.                                                                                                                 | 738 | 750 | J15           |

## Short Answers

- |                                                                                                    |     |     |               |
|----------------------------------------------------------------------------------------------------|-----|-----|---------------|
| 1. Explain the advantages of doxycycline over other tetracycline preparations.                     | —   | 749 | J07, D14      |
| 2. Explain why tetracyclines should not be administered with milk.                                 | 735 | 749 | D00           |
| 3. Doxycyclines are preferred to oxytetracyclines for oral therapy. Why?                           | 735 | 749 | J01, J14      |
| 4. Explain the drug interaction between tetracycline and aluminium hydroxide.                      | 735 | 749 | D15           |
| 5. Tetracyclines should not be given along with antacids.                                          | 735 | 749 | D01           |
| 6. List tetracycline food interactions.                                                            | 735 | 749 | D03           |
| 7. Tetracycline should not be used along with milk.                                                | 735 | 749 | D06           |
| 8. Name some side effects of tetracyclines.                                                        | 735 | 750 | J10(RS2), D99 |
| 9. Unlike other tetracycline's, doxycycline can be safely used in patients with renal dysfunction. | 736 | 749 | J00           |
| 10. Name two drugs producing phototoxicity.                                                        | 736 | 750 | J08           |

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	KDTP	SHRM	
11. List three points of difference between doxycycline and tetracycline.	736	749	J04
12. Specify two adverse effects of doxycycline.	736	750	J08
13. Explain why tetracyclines are contraindicated in children and pregnancy.	736	750	D13(RS3)
14. Tetracyclines are not prescribed for young children. Give reasons.	736	750	J02, J03, D13
15. Explain why tetracyclines are contraindicated in pregnancy.	736	750	D12
16. Dangers expected in offspring if tetracyclines are given during pregnancy.	736	750	D07
17. Explain adverse effects of tetracycline on bone and teeth.	736	750	D05
18. Name three clinical conditions for which tetracyclines will be your drugs of choice.	737	749	J16(RS3)
19. Specify two side effects of chloramphenicol.	740	752	J10, J12, J16
20. Chloramphenicol is to be avoided in infants.	741	752	J02, J14

**CHAPTER 53****AMINOGLYCOSIDE ANTIBIOTICS****Long Essays**

- |                                                                                                                                                                       |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
| 1. Describe mechanism of action, resistance, uses and adverse effects of aminoglycosides.                                                                             | 743      | 735      | D09(RS2) |
| 2. Enumerate six aminoglycosides. Explain the mechanism of action of such drugs and enumerate the common characteristics of drugs in the group.                       | 743      | 735      | D05      |
| 3. Name the aminoglycoside antibiotics. Mention their mechanism of action and adverse effects. Discuss the antibacterial spectrum and therapeutic uses of gentamicin. | 743, 747 | 735, 737 | J00, D01 |
| 4. Enumerate aminoglycoside antibiotics. Mention their general pharmacological properties. Write the therapeutic uses of gentamicin.                                  | 743, 747 | 735, 737 | D02      |

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	KDTP	SHRM
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|--------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|
| 5. Classify aminoglycosides. Describe their share properties, spectrum, adverse effects and indications. Add a note on streptomycin. | 743, 748 | 736 J10(RS2) |
|--------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|

**Short Essays**

- |                                                                              |     |              |
|------------------------------------------------------------------------------|-----|--------------|
| 1. Aminoglycosides.                                                          | 743 | 735 J12      |
| 2. Shared properties/general features of aminoglycosides.                    | 743 | 736 J13, J15 |
| 3. Name aminoglycosides. Mention their therapeutic uses and adverse effects. | 743 | 737 D06(RS2) |
| 4. Adverse effects of aminoglycosides.                                       | 745 | 739 D06, D11 |
| 5. Risk factors for developing toxicity during aminoglycoside therapy.       | 745 | 739 J06      |
| 6. Therapeutic uses of aminoglycoside antibiotics (gentamicin).              | 747 | 737 D08, J10 |

**Short Answers**

- |                                                                       |     |                             |
|-----------------------------------------------------------------------|-----|-----------------------------|
| 1. Name two aminoglycoside antibiotics.                               | 743 | 737 J16                     |
| 2. Mention four shared features of aminoglycosides.                   | 743 | 735 D16                     |
| 3. Shared toxicities of aminoglycoside antibiotics.                   | 743 | 736 D13(RS3), J14(RS3)      |
| 4. Aminoglycosides are not effective against intracellular pathogens. | 744 | 736 J02                     |
| 5. Adverse effects of aminoglycosides.                                | 744 | 739 J11(RS2), J15(RS3), D10 |
| 6. Explain the rationale of parenteral therapy of aminoglycosides.    | 746 | 736 J05                     |
| 7. Give reasons for—amikacin preferred to gentamicin.                 | 749 | 738 J14                     |
| 8. Neomycin's use in hepatic coma.                                    | 750 | 738 D08                     |

**CHAPTER 54****MACROLIDE, LINCOSAMIDE, GLYCOPEPTIDE AND OTHER ANTIBACTERIAL ANTIBIOTICS; URINARY ANTISEPTICS****Long Essay**

- |                                                                                                                 |     |                   |
|-----------------------------------------------------------------------------------------------------------------|-----|-------------------|
| 1. Enumerate macrolide antibiotics. Describe the mechanism of action, adverse effects and uses of erythromycin. | 752 | 740 J11(RS2), J10 |
|-----------------------------------------------------------------------------------------------------------------|-----|-------------------|

**Short Essays**

- |                           |     |              |
|---------------------------|-----|--------------|
| 1. Macrolide antibiotics. | 752 | 740 J12      |
| 2. Erythromycin.          | 752 | 740 J16(RS3) |

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	KDPT	SHRM	
3. Therapeutic uses and adverse effects of erythromycin.	753	742	D00
4. Enumerate newer macrolide antibiotics. What are their advantages over older ones?	754	740	D06(RS2)
5. Roxithromycin.	754	741	D04
6. Clarithromycin.	754	741	D09
7. Azithromycin.	755	741	D15(RS3)
8. Advantages of azithromycin over other macrolides.	755	741	D07
9. Advantages of azithromycin over erythromycin. Write briefly on the therapeutic uses of azithromycin.	755	741	J07(RS2)
10. Glycopeptide antibiotics.	757	732	D16(RS3)
11. Outline the therapeutic options for the management of pseudomembranous colitis.	757	699	J04
12. Vancomycin versus telcoplanin.	758	—	J09(RS2)
13. Urinary antiseptics.	760	714	J11(RS2)
14. Treatment of urinary tract infection.	761	715	J09
<b>Short Answers</b>			
1. Ampicillin is preferred to benzylpenicillin for urinary tract infections.	—	722	J02
2. Name two/four macrolide antibiotics and write two uses.	752	740	D99, J09, D11, J15
3. Mechanism of action of erythromycin.	752	740	J11
4. Name four newer macrolides.	754	741	J13
5. Name two newer macrolid antibiotics. Mention two advantages of these over older macrolides.	754	741	J06, J07
6. Advantages of roxithromycin.	754	741	D05
7. Azithromycin.	755	741	D07(RS2), D08(RS2)
8. Mention two advantages of azithromycin over erythromycin.	755	741	D12
9. Write two differences between erythromycin and azithromycin.	755	741	J03
10. Mention two uses of clindamycin.	756	744	D08
11. Drug treatment of pseudomembranous colitis.	757	699	J12(RS2)
12. Use of vancomycin in the treatment of pseudomembranous colitis.	757	699	J02

Contd... —

Contd...

	KDTP	SHRM	
13. Linezolid.	758	745	J12(RS2)
14. What is mupirocin?	759	747	D99
15. Urinary antiseptics.	760	714	D10(RS2)
16. Outline the mechanism of action of nitrofurantoin.	760	714	J04
17. Explain rationale for using hexamine mandelate in urinary tract infection but not in systemic infection.	760	—	D06(RS2), D15
18. In the treatment of urinary tract infection with mandelamine, urine should be acidified.	760	—	D01
19. Mention two drugs used in syphilis.	763	721	J08
20. Mention two drugs used in gonococcal infection.	763	721	D08

**CHAPTER 55****ANTITUBERCULAR DRUGS****Long Essays**

1. List antitubercular drugs. Describe in detail about first line drugs (mechanism of action and salient adverse effects). 765, 766 753,754 J08(RS2), J16
2. Classify drugs used in the chemotherapy of tuberculosis. Outline the mechanism of action and adverse effects of isoniazid. Describe short course chemotherapy. 765, 766, 773 753, 754, 759 D15(RS3)
3. Classify antituberculous drugs. Describe in detail the mechanism of action, uses and dose and adverse effects of isonicotinic acid hydrazide. Add a note on various regimes used in the management of pulmonary tuberculosis. 765, 766, 774 753,754 D11(RS2), D03, J08
4. Enumerate the first line and the second line drugs for treatment of tuberculosis, (classify antitubercular drugs). Write the mechanism of action, therapeutic uses and adverse effects of rifampicin. Write the short course regimen for TB. 765, 767, 773 753,755, 759 D10(RS2), J16(RS3), D16
5. Classify antitubercular drugs with examples for each. What are the principles of antitubercular drug therapy? Describe short course chemotherapy. 765, 772, 773 753,759 J07(RS2)

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	KDTPT	SHRM
6. Enumerate the antitubercular drugs. Explain the mechanism of action and adverse effects of any two of the standard drugs. Describe the short course chemotherapy of tuberculosis.	765, 773	753, 759 J02
<b>Short Essays</b>		
1. First line antitubercular drugs.	765	754 D11, D14
2. Isoniazid (mechanism of action and adverse effects).	766	754 J12(RS2), D02
3. Mention adverse effects of first line drugs used in tuberculosis.	767	754 D16(RS3)
4. Rifampicin (mechanism of action, pharmacological action, therapeutic uses and adverse effects).	767	755 J07(RS2), D09(RS2), D12(RS3), J14(RS3), D14(RS3), J15(RS3), D04, J10, J11, J12, J14, D15
5. Short course chemotherapy in tuberculosis.	773	759 D13
6. Directly observed treatment, short course chemotherapy (DOTS) under Revised National Tuberculosis Control Program.	773	759 J10(RS2)
<b>Short Answers</b>		
1. Enumerate four second line drugs for pulmonary tuberculosis.	765	754 J05
2. Write two adverse effect of isonicotinic acid hydrazide (INH).	767	754 D99
3. Rifampicin.	767	755 J09(RS2)
4. Mention two selective adverse effects of INH.	767	754 J03
5. Explain the rationale for combining pyridoxine with INH.	767	754 J07, J11, J14
6. Rationale for giving vitamin B <sub>6</sub> with isonicotinic acid hydrazide (INH) in tuberculosis.	767	754 D07
7. Four adverse effects of rifampicin.	768	755 D00, D09
8. Rifampicin reduces the efficacy of oral contraceptive pills.	768	755 J02
9. Two selective adverse effects of ethambutol.	769	756 J01
10. Ethambutol is not prescribed in children.	769	756 D05

Contd... —



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	KDTP	SHRM	
11. Explain the basis for multidrug treatment in tuberculosis for several months.	772	759	J00, D01, D06, J07, D12, J13
12. Short course chemotherapy in pulmonary tuberculosis (rationale).	773	759	D04
13. Rationale for using glucocorticoids (prednisolone) along with antitubercular drugs in TB meningitis.	778	760	J00, D01

**CHAPTER 56****ANTILEPROTIC DRUGS****Long Essay**

- |                                                                                                                                                                             |          |               |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|-----|
| 1. Enumerate the drugs used for the treatment of leprosy. Write the mechanism of action of dapsone. Describe one multidrug regimen for treatment of multibacillary leprosy. | 780, 785 | 761, 762, 763 | J01 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|-----|

**Short Essays**

- |                                         |     |     |                    |
|-----------------------------------------|-----|-----|--------------------|
| 1. Dapsone.                             | 780 | 762 | J14(RS3), D09, J11 |
| 2. Clofazimine.                         | 781 | 762 | D08                |
| 3. Treatment of multibacillary leprosy. | 785 | 763 | D10                |
| 4. Lepra reaction and its management.   | 786 | 762 | D09(RS2), J02, D14 |

**Short Answers**

- |                                                                                  |     |     |                                        |
|----------------------------------------------------------------------------------|-----|-----|----------------------------------------|
| 1. Mechanism of action DOs (dapsone).                                            | 780 | 762 | D99, J12                               |
| 2. Side effects of dapsone.                                                      | 781 | 762 | J06, D08                               |
| 3. Mention two indications for dapsone.                                          | 781 | 762 | J10                                    |
| 4. Clofazimine.                                                                  | 781 | 762 | D09(RS2), J12(RS2)                     |
| 5. Rationale of using clofazimine in lepra reaction.                             | 781 | 762 | D00, D01, J06, J11                     |
| 6. Name first line drugs used in leprosy with dosage.                            | 784 | 762 | D06(RS2)                               |
| 7. Multidrug therapy regimen in leprosy.                                         | 784 | 763 | D07(RS2), J14                          |
| 8. Therapy of multibacillary leprosy—explain.                                    | 785 | 763 | J07                                    |
| 9. Lepra reaction                                                                | 786 | 762 | D07, J10, J12                          |
| 10. Treatment of lepra reaction.                                                 | 786 | 762 | D13(RS3)                               |
| 11. What is lepra reaction? Mention two/three/four drugs used in lepra reaction. | 786 | 762 | D14(RS3), D15(RS3), D02, D09, J16, D16 |

Contd...

Contd...

	KDTPT	SHRM	
12. Enumerate two drugs used for the treatment of erythema nodosum leprosum.	786	762	J04
13. Explain the basis for lepra reaction.	786	762	J05

**CHAPTER 57****ANTIFUNGAL DRUGS****Long Essay**

- |                                                                                                                                                                                                                                   |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
| 1. Classify the drugs used in the treatment of fungal infections along with examples for each group. Describe the mechanism of action of imidazole antifungal drugs with therapeutic uses and adverse effects of any one of them. | 787, 791 | 764, 767 | D06(RS2) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|

**Short Essays**

- |                                                                 |     |     |                                    |
|-----------------------------------------------------------------|-----|-----|------------------------------------|
| 1. Classify antifungal agents.                                  | 787 | 764 | J11, D14                           |
| 2. Drugs for superficial fungal infections.                     | 787 | 764 | D10(RS2)                           |
| 3. Amphotericin B.                                              | 787 | 765 | D13(RS3), D09                      |
| 4. Describe the mechanism of action and uses of amphotericin B. | 787 | 765 | D14                                |
| 5. Topical antifungal agents.                                   | 787 | 772 | J00                                |
| 6. Systemic antifungal agents.                                  | 789 | 765 | D08(RS2), J14                      |
| 7. Treatment of systemic fungal infection.                      | 789 | 765 | D09(RS2)                           |
| 8. Griseofulvin.                                                | 790 | 771 | D00, J08, J09                      |
| 9. Azole antifungal agents.                                     | 791 | 767 | D07(RS2),<br>D12(RS3),<br>J13(RS3) |
| 10. Imidazole antifungal drugs.                                 | 791 | 767 | D01                                |
| 11. Ketoconazole.                                               | 792 | 767 | J15(RS3)                           |
| 12. Fluconazole.                                                | 793 | 768 | D15(RS3), D04,<br>J06, D16         |

**Short Answers**

- |                                                   |     |     |          |
|---------------------------------------------------|-----|-----|----------|
| 1. Name two systemically used antifungal agents.  | 787 | 765 | D99      |
| 2. Name two/four topically used antifungal drugs. | 787 | 764 | D00, J15 |
| 3. Name two polyene antibiotics.                  | 787 | 764 | D00      |
| 4. Name two newer broadspectrum antifungal drugs. | 787 | 764 | J03      |
| 5. Enumerate adverse effects of amphotericin B.   | 788 | 767 | J07, D08 |

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Contd...

	KDTPT	SHRM	
6. Two uses of amphotericin.	789	765	J12
7. Name four drugs used in oral candidiasis.	789	764	D12
8. Griseofulvin is very suitable for the ringworm infestation of the skin, hair and nails.	791	771	J00
9. Rationale for using griseofulvin in dermatophytoses.	791	771	D01, D06, J11, D11
10. Ketoconazole (two uses and one adverse effect).	792	767	D09(RS2), D14(RS3)
11. Mention briefly the mechanism of action of ketoconazole.	792	767	J08
12. Write the composition of Whitefield ointment.	797	—	D09

**CHAPTER 58****ANTIVIRAL DRUGS****Short Essays**

1. Acyclovir.	799	778	J03, J07, D15
2. Drugs used for HIV infection.	805	787	J02
3. Nucleoside reverse transcriptase inhibitors (NRTIs).	806	787	J10(RS2), D13(RS3), D15(RS3), D13
4. Zidovudine.	806	789	D09, J15
5. Non-nucleoside reverse transcriptase inhibitors.	808	791	D14(RS3)
6. Protease inhibitors.	809	793	J09(RS2), D12(RS3), J13(RS3), J14(RS3), D16(RS3), D12, J13
7. Chemoprophylaxis of HIV infections.	814	—	J15(RS3)

**Short Answers**

1. Name two classes of antiretroviral drugs with one example each.	798	787	J16
2. Name two drugs used in AIDS.	798	787	D00
3. Name protease inhibitors.	798	793	D11(RS2), D15
4. Name two antiviral drugs used in influenza.	798	782	D09
5. Name two drugs used in herpes simplex and mention their common adverse effects.	798	778	D13

Contd...

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	KDTPT	SHRM	
6. Mention two uses of acyclovir.	799	778	D99, D09, D14
7. Acyclovir in herpes keratitis.	800	778	D11
8. Amantadine.	801	782	D11(RS2)
9. Oseltamivir.	802	783	J11(RS2)
10. Tamiflu (oseltamivir) in H1N1 (swine flu) infection.	802	783	D11, J12
11. Zanamivir.	802	783	J08(RS2)
12. Ribavirin.	804	782	D11(RS2)
13. Interferons.	804	783	J09
14. Mention two uses of interferons.	805	784	D09
15. Zidovudine in AIDS (HIV).	806	789	J11, D11
16. Toxicities (side effects) of zidovudine.	807	789	D05, D06, J10
17. Name two non-nucleoside reverse transcriptase inhibitors (NNRTIs).	808	787	D14
18. Nevirapine.	809	731	J08(RS2), J12(RS2)

**CHAPTER 59****ANTIMALARIAL DRUGS****Long Essays**

1. List both the clinical and chemical classification of drugs used in the treatment of malaria. Mention the mechanism of action, pharmacological actions, adverse effects and uses of chloroquine. State briefly the management of chloroquine resistant *P. falciparum* malaria. 816, 809, D10, 821, 820 812, 811
2. Classify antimalarial drugs. Describe the drug treatment of an acute attack of malaria. 816, 819 809, 811 D15
3. Classify the drugs used in the treatment of malaria. Write the antimalarial action (mechanism of action), therapeutic uses and adverse effects of chloroquine. Name four drugs used for management of chloroquine resistant *falciparum* malaria. 816, 821 809, J15(RS3), 812, D16(RS3), J03, 811 D11, J15

**Short Essays**

1. Classify antimalarial drugs. 816 809 D10(RS2)
2. Chemoprophylaxis of malaria. 818 810 D01
3. Treatment of *falciparum* malaria. 820 811 J16

Contd... —

Contd...

	KDTP	SHRM	
4. Drugs used for resistant falciparum malaria.	820	811	J02
5. Drugs used in chloroquine resistant malaria.	820	811	D99, D13
6. Chloroquine—therapeutic uses and adverse reactions.	822	812	D08(RS2), D12(RS3), J13, D14, D16
7. Therapeutic uses of chloroquine.	823	812	D07
8. Extramalarial uses of chloroquine.	823	812	J12
9. Mefloquine.	824	814	J08
10. Treatment of cerebral malaria.	826	811	J00
11. Artemisinin derivatives and their uses.	829	816	J11(RS2), D12

**Short Answers**

1. Rationale for loading dose of chloroquine in acute attack of malaria.	—	811	J09
2. Chemoprophylaxis of malaria—explain.	818	810	J07
3. Radical cure in <i>Plasmodium vivax</i> malaria—give details.	820	811	D11(RS2), J05
4. How is radical cure achieved in <i>Plasmodium vivax</i> malaria?	820	811	J07(RS2)
5. Name three/four drugs used in chloroquine resistant falciparum malaria with their mechanism of action.	820	811	D15(RS3), D02
6. Name three drugs used in multidrug resistant malaria.	820	811	D14(RS3)
7. Chloroquine is not effective for radical cure of vivax malaria.	821	811	D01
8. Five uses of chloroquine.	823	811	D04
9. Mention four therapeutic uses of chloroquine.	823	811	D05
10. Uses of mefloquine.	824	814	D99
11. Mention the uses of quinine.	825	813	J08
12. Pyrimethamine and sulfadoxine in chloroquine resistant malaria.	827	811	J11
13. Which sulfadoxine in malaria.	827	815	J06
14. Primaquine is useful for the radical cure of vivax malaria.	828	814	J00
15. Rationale of giving chloroquine and primaquine in acute vivax malaria.	828	811	D00
16. In acute vivax malaria treatment with chloroquine should be followed by a course of primaquine. Why?	828	811	J01, D11

Contd...

Contd...

	KDPT	SHRM	
17. Mention three artemisinin-based combination therapy (ACT) regimens for uncomplicated falciparum malaria.	833	817	J14(RS3)

**CHAPTER 60****ANTIAMOEBIIC AND OTHER ANTIPROTOZOAL DRUGS****Long Essay**

- |                                                                                                                                                               |     |     |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|--------------------|
| 1. Classify antiamoebic drugs. Describe the mechanism of action, therapeutic uses and adverse effects of metronidazole. Explain its interaction with alcohol. | 837 | 819 | J08(RS2), D08, D12 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|--------------------|

**Short Essays**

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|--------------------------------------------------|
| 1. Drugs in amoebiasis.                                                                                                                                          | 837 | 819      | J11, D11                                         |
| 2. Metronidazoles (actions, uses and side effects).                                                                                                              | 837 | 820      | J09(RS2), J11(RS2), J12(RS2), D02, D04, J14, D16 |
| 3. List the indications for use of metronidazole. Specify the condition where it is combined with diloxanide furoate. What is the rationale for the combination? | 838 | 820, 821 | D06(RS2)                                         |
| 4. Drug treatment of acute amoebic dysentery and chronic amoebiasis.                                                                                             | 838 | 821      | J16(RS3)                                         |
| 5. Tinidazole.                                                                                                                                                   | 839 | 821      | D05                                              |
| 6. Treatment of extraintestinal amoebiasis.                                                                                                                      | 842 | 822      | D08(RS2)                                         |

**Short Answers**

- |                                                                                               |     |     |                    |
|-----------------------------------------------------------------------------------------------|-----|-----|--------------------|
| 1. Drugs used in amoebiasis.                                                                  | 837 | 819 | D13                |
| 2. Name two tissue amoebicides.                                                               | 837 | 819 | D14                |
| 3. List three nitroimidazoles.                                                                | 837 | 819 | D16(RS3)           |
| 4. Metronidazole.                                                                             | 837 | 819 | D10(RS2)           |
| 5. Metronidazole is effective only against anaerobic organisms.                               | 837 | 820 | D01                |
| 6. Mention two uses and two adverse effects of metronidazole.                                 | 837 | 820 | J13                |
| 7. Name four uses of metronidazole.                                                           | 838 | 820 | D00, J01, J06, J16 |
| 8. Tinidazole.                                                                                | 839 | 821 | D07                |
| 9. Chloroquine is used only in extra-intestinal amoebiasis but not in amoebic dysentery. Why? | 840 | 822 | J00, J01           |

Contd...

Contd...

	KDTP	SHRM	
10. Chloroquine is not effective in intestinal amoebiasis.	840	822	D06
11. Diloxanide furate.	840	823	D07(RS2)
12. Explain the therapeutic use of diloxanide furate.	840	823	J05
13. Treatment of trichomonal vaginitis.	844	823	J09

**CHAPTER 61****ANTHELMINTHIC DRUGS****Short Essays**

1. Mebendazole.	849	802	D11(RS2)
2. Drugs used in tapeworm infestations.	850	799	J03
3. Drug therapy of ascariasis.	850	798	J09(RS2), D04
4. Albendazole.	850	801	J16(RS3), D16(RS3), D08, J14
5. Actions and uses of albendazole.	851	801	D14
6. Diethylcarbamazine.	853	803	D00, J01
7. Drugs in filariasis.	853	803	D07(RS2)
8. Treatment of filariasis.	853	803	D01

**Short Answers**

1. Mebendazole in roundworm infestation.	850	799	J11
2. Name two anthelmintic agents.	850	798	J10, J12, J14
3. Name the drugs used in roundworm infestation.	850	800	J08
4. Treatment of roundworm infestation.	850	800	D07
5. Name two drugs used in filariasis.	850	803	D08, D15
6. Broad spectrum anthelmintic drugs.	850	799	D10(RS2)
7. Albendazole.	850	801	D13(RS3), J14(RS3)
8. Why is albendazole preferred over mebendazole?	850	801	D10
9. Levamisole.	852	804	J12(RS2)
10. Diethylcarbamazine.	853	803	J13(RS3), D15(RS3)
11. Pharmacological basis for use of diethyl carbamazine in filariasis.	853	803	J09, J11
12. Uses of diethylcarbamazine citrate.	853	803	D11(RS2)
13. Ivermectin (uses).	854	804	J11(RS2), D06

Contd. —

Contd...

	KDPT	SHRM	
14. Niclosamide.	854	805	D09(RS2), J10(RS2)
15. Praziquantel.	855	806	J13
16. Praziquantel is preferred to niclosamide for the treatment of <i>T. solium</i> infestation	855	806	J00, J02
17. Mention two important uses of praziquantel.	855	806	J01
18. Praziquantel is contraindicated in ocular cysticercosis.	855	806	D06
19. Outline drug treatment of cysticercosis.	856	806	D06(RS2)

## Section XIII: Chemotherapy of Neoplastic Diseases

## CHAPTER 62

## ANTICANCER DRUGS

## Long Essay

1. Classify alkylating anticancer drugs with examples. Explain the mechanism of action. Enumerate four therapeutic uses of any one. Enlist commonly encountered adverse effects with anticancer drugs. 858, 860 844, 843 J07

## Short Essays

1. General (common) toxicities of anticancer drugs (cytotoxic drugs) 858 843 D16
2. Alkylating agents. 860 844 D02, J06, D10
3. Cyclophosphamide (mechanism of action, therapeutic uses and adverse effects). 860 844 D14(RS3), J10, J12
4. Methotrexate. 862 839 J12(RS2), J14(RS3), D00, J05, D08, J09, D09, D12, J13, J15
5. Antimetabolites. 862 845 D01, J14
6. Purine antagonists. 863 841 D02
7. Azathioprine. 863 885 J15(RS3)
8. Natural products used in cancer. 865 847 D12(RS3)
9. Vinca alkaloids. 865 847 D11(RS2), D15(RS3), J02, D13
10. Role of vinca alkaloids and taxanes in cancer. 865 847 J10(RS2)

Contd... —



Contd...

	KDTPT	SHRM	
11. Pharmacological actions and uses of taxanes.	865	848	J08(RS2)
12. Bleomycin.	868	846	J01
13. L-asparaginase.	868	849	D06
14. Methods to ameliorate toxicity due to anticancer drugs.	876	—	D16(RS3)
<b>Short Answers</b>			
1. Drugs used in chronic myeloid leukemia.	—	863	D05
2. Cytotoxic drugs (alkylating agents).	860	844	D10(RS2)
3. Cyclophosphamide (uses).	860	844	J09(RS2), J14(RS3)
4. Toxicity of cyclophosphamide.	860	844	J08(RS2)
5. How cisplatin acts as anticancer agent?	861	849	D15
6. Methotrexate.	862	839	D07(RS2), D08(RS2), D12(RS3)
7. Azathioprine.	863	885	D08(RS2)
8. Use of folinic acid (citrovorum factor) in methotrexate toxicity (reasoning).	863	839	D16(RS3), D04, J11
9. What is the mechanism of action of paclitaxel?	865	848	J04
10. Enumerate the adverse effects of vincristine.	865	847	J05
11. Name two uses of vincristine.	865	847	J15
12. Name four anticancer antibiotics.	867	846	J01, J16
13. L-asparaginase.	868	849	D12(RS3), J13(RS3)
14. Outline the rationale in the use of L-asparaginase in the therapy of malignancy.	868	849	D03
15. Explain mechanism of action of L-asparaginase with one indication for its use.	868	849	D06(RS2), D07
16. Uses of imatinib.	870	857	D06
17. Explain why anticancer drug therapy is given intermittently (pulse therapy).	873	862	J07(RS2)
18. Name two phase specific drugs used in malignancy.	874	847	D99
19. Antidotes for methotrexate and cyclophosphamide.	876	—	D15
20. Thalidomide.	877	890	J13(RS3)

Contd... —

Contd...

KDTPT SHRM

## Section XIV: Miscellaneous Drugs

## CHAPTER 63

## IMMUNOSUPPRESSANTS AND GENE THERAPY

## Long Essay

- |                                                                                                                       |     |          |          |
|-----------------------------------------------------------------------------------------------------------------------|-----|----------|----------|
| 1. Classify immunosuppressant drugs.<br>Explain pharmacological actions, uses<br>and adverse effects of cyclosporine. | 878 | 882, 883 | D09(RS2) |
|-----------------------------------------------------------------------------------------------------------------------|-----|----------|----------|

## Short Essays

- |                                                                                             |     |     |                       |
|---------------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. Calcineurin inhibitors.                                                                  | 878 | 883 | J13(RS3)              |
| 2. Immunosuppressive (mechanism of action,<br>therapeutic indications and adverse effects). | 878 | 882 | D06(RS2), D00,<br>J04 |
| 3. Cyclosporine—mechanism of action<br>and uses.                                            | 878 | 883 | D11(RS2), D01         |
| 4. Immunomodulators (immunostimulants<br>and immunosuppressants).                           | 879 | 882 | D14                   |

## Short Answers

- |                                                                                       |     |     |                       |
|---------------------------------------------------------------------------------------|-----|-----|-----------------------|
| 1. What is gene therapy?                                                              | —   | —   | D07                   |
| 2. Immunosuppressants.                                                                | 878 | 882 | D12(RS3)              |
| 3. Mention two immunosuppressive drugs.<br>Mention two important indications for use. | 878 | 882 | D07, J16              |
| 4. Cyclosporine (uses and adverse<br>effects).                                        | 878 | 883 | D07(RS2), J09,<br>D16 |
| 5. Cyclosporine in renal transplantation.                                             | 881 | 883 | J11                   |
| 6. Tacrolimus.                                                                        | 881 | 883 | J09(RS2)              |
| 7. Mycophenolate mofetil.                                                             | 883 | 885 | J15(RS3)              |
| 8. Name two clinical conditions where<br>immunosuppressive are used.                  | 885 | 883 | J01                   |

## CHAPTER 64

## DRUGS ACTING ON SKIN AND MUCOUS MEMBRANES

## Short Essays

- |                                     |     |     |          |
|-------------------------------------|-----|-----|----------|
| 1. Drugs for acne vulgaris.         | 893 | —   | J12(RS2) |
| 2. Topical glucocorticoids.         | 895 | 571 | D07(RS2) |
| 3. Topical uses of glucocorticoids. | 896 | 57  | J02      |

## Short Answers

- |                                             |     |     |               |
|---------------------------------------------|-----|-----|---------------|
| 1. Name two drugs used for psoriasis.       | 891 | —   | J10, J14      |
| 2. Calcipotriol.                            | 891 | 621 | J12(RS2)      |
| 3. Mention two drugs used in acne vulgaris. | 893 | —   | J10, J12, J14 |
| 4. Name two topical corticosteroids.        | 895 | 569 | J08           |

Contd... —

Contd...

KDTPT SHRM

**CHAPTER 65****ANTISEPTICS, DISINFECTANTS  
AND ECTOPARASITICIDES****Short Essays**

1. Povidone iodine.	899	831	J06
2. Oxidizing antiseptic agents.	899	832	J15(RS3)
3. Drugs used for scabies.	902	—	J00
4. Drug treatment of scabies.	902	—	D15

**Short Answers**

1. Define antiseptics with two examples.	897	829	J16, D16
2. Properties of an ideal antiseptic.	897	829	D13
3. Mention four antiseptics and disinfectants.	898	829	D02
4. Name two antiseptics and write two uses.	898	829	J15
5. Carbolic acid (phenol).	898	830	J08(RS2)
6. Oxidizing agents.	899	832	J12(RS2)
7. What is the mode of action and therapeutic uses of potassium permanganate?	899	832	J07(RS2)
8. Potassium permanganate is used as antiseptic. Give reasons.	899	832	J01
9. Hydrogen peroxide is used as antiseptic. Give reasons.	899	832	J03
10. Explain mechanism of action of povidone iodine with four uses.	899	831	D06(RS2)
11. Chlorhexidine.	900	832	J09
12. What is the mechanism of action of glutaraldehyde?	901	829	J04
13. Drug treatment of scabies.	902	—	D11(RS2)
14. Enlist three drugs for the treatment of scabies.	902	—	J16(RS3), D09, J15
15. Permethrin.	902	—	D09(RS2), J15(RS3)

**CHAPTER 66****CHELATING AGENTS****Short Essays**

1. Chelating agents.	905	868	D99, J12
2. Dimercaprol (British anti-Lewisite).	905	868	J01, J05, D05, J10
3. Calcium disodium edetate—uses and adverse effects.	906	869	J08(RS2)

Contd... —

Contd...

	KDTP	SHRM	
4. d-penicillamine.	907	869	J12(RS2), J16(RS3), J13, D14
5. Desferrioxamine (actions and uses).	907	870	D06, J07
6. Treatment of iron poisoning.	907	870	J14(RS3)

**Short Answers**

1. What is chelating agent? Give two/four examples.	905	868	D02, D16
2. Role of chelating agents.	905	868	J09(RS2)
3. Name two chelating agents mentioning one indication for each.	905	868	D07, J15, J16
4. British anti-Lewisite (BAL).	905	868	D07(RS2)
5. Two uses of BAL.	905	868	J13
6. Dimercaprol.	905	868	D13(RS3), D15(RS3)
7. Dimercaprol in mercury poisoning.	905	868	D01
8. Outline therapy of chronic lead poisoning.	906	869	D03
9. Desferrioxamine (one use and two adverse effects).	907	870	D08(RS2), J10(RS2), D12(RS3), D14(RS3), D16(RS3), J11
10. d-penicillamine.	907	869	J13(RS3)
11. Uses of d-penicillamine.	907	870	J11(RS2), J03
12. Treatment of iron poisoning.	907	870	D10
13. Mention the antidote for iron poisoning and give its mechanism of action.	907	870	J04

**CHAPTER 67****VITAMINS****Short Essays**

1. Role of vitamins in treatment of diseases.	—	663	J10(RS2)
2. Fat-soluble vitamins.	909	663	J16
3. Hypervitaminosis A.	910	664	D00
4. Vitamin E and its uses.	911	665	J08(RS2)
5. Vitamin C.	916	667	J01

**Short Answers**

1. Name two fat-soluble vitamins and write their functions.	909	663	J15
-------------------------------------------------------------	-----	-----	-----

Contd... —

Contd....

	KDPT	SHRM	
2. Vitamin A and its uses.	909	663	D09(RS2), J14(RS3), J16(RS3)
3. Name two water-soluble vitamins.	909	663	D08
4. Mention four water-soluble vitamins. Write one use of any one vitamin.	909	663	D02
5. Antioxidants.	912	667	J09
6. What is thiamine? Where is it used?	912	665	D10
7. Therapeutic uses of vitamin C.	918	667	D16(RS3), J15, J16

**CHAPTER 68****VACCINES AND SERA****Short Answers**

- |                                         |     |     |          |
|-----------------------------------------|-----|-----|----------|
| 1. Specify two uses of BCG vaccination. | 922 | 890 | D09      |
| 2. Polio vaccine.                       | 922 | —   | J08(RS2) |

**MISCELLANEOUS****Short Essays**

- |                                         |   |     |               |
|-----------------------------------------|---|-----|---------------|
| 1. Enzymes in therapy.                  | — | —   | D10(RS2), D12 |
| 2. Radioactive isotopes.                | — | —   | D99, D02      |
| 3. Drug treatment of hypovolemic shock. | — | 896 | J06           |
| 4. Therapeutic drug monitoring.         | — | —   | J07           |
| 5. Treatment of septic shock.           | — | 897 | J07           |
| 6. Topoisomerase inhibitors.            | — | —   | J12           |

**Short Answers**

- |                                                                                         |         |         |               |
|-----------------------------------------------------------------------------------------|---------|---------|---------------|
| 1. Mention the antidotes for the following:                                             |         |         | J09(RS2)      |
| (a) Diazepam                                                                            | (a) 408 | (a) 444 |               |
| (b) Paracetamol                                                                         | (b) 207 | (b) 371 |               |
| (c) Heparin                                                                             | (c) 620 | (c) 679 |               |
| 2. List two classes of drugs used in therapy of cardiogenic shock giving the rationale. | —       | 897     | J05           |
| 3. Name four drugs used in hypovolemic shock.                                           | —       | 894     | D05           |
| 4. Mesna.                                                                               | —       | 858     | J11(RS2), D14 |
| 5. Serratiapeptidase.                                                                   | —       | —       | J10(RS2)      |
| 6. Bacterial endocarditis should always be treated with bactericidal drugs.             | —       | —       | J00           |
| 7. Name two enzymes used in therapy.                                                    | —       | —       | J01           |
| 8. Only bactericidal drugs shall be used in the treatment of bacterial endocarditis.    | —       | —       | J02           |

Contd....

Contd...

	KDTPT	SHRM	
9. Indications for hypertonic glucose infusion.	—	—	D04
10. Tricyclic antidepressants are used in irritable bowel syndrome.	—	—	J06
11. 'Spindle poison'—explain with examples.	—	—	J07
12. Hyaluronidase.	—	—	D07
13. Name two drugs used in burns.	—	—	J08
14. Oxygen therapy.	—	—	J11

# 4

## **Forensic Medicine and Toxicology**

**REFERENCES**

1. KS Narayan Reddy (**NYNRD**): The Synopsis of Forensic Medicine and Toxicology (28th Edition); Jaypee, The Health Sciences Publisher, New Delhi, Rs. 360/-
2. Singi Yatiraj (**SNGY**): Quick Review of Forensic Medicine (1st Edition); Jaypee, The Health Science Publishers, New Delhi, Rs. 195/-



**COURSE CONTENTS****THEORY****I. Forensic Medicine***Must Know*

- History of forensic medicine, definition of forensic medicine and medical jurisprudence, medical etiquette.
- Courts in India and their powers: Supreme court, high court, sessions court, additional sessions court, magistrate's court.
- Court procedures: Summons, conduct money, oath, affirmation, perjury, types of witnesses, types of examination, recording evidence, court questions, conduct of doctor in witness box, medical examiner system.
- Medical certification and medicolegal reports including dying declaration.
- Death:
  - Definition, types—somatic, cellular and brain death.
  - Natural and unnatural death.
  - Presumption of death and survivorship.
  - Suspended animation.
  - Death certification, cause of death as per international classification of diseases—World Health Organization (WHO) guidelines.
- Changes after death:
  - Cooling of body, lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening.
  - Putrefaction, mummification, adipocere and maceration.
  - Estimation of time of death.
  - Embalming.
- Inquest by police and magistrate.
- Identification:
  - Definition, corpus delicti
  - Identification of living persons—race, age, sex, religion, complexion, stature.
  - Identification of criminals, unknown persons, dead bodies and remains of a person by: hair fiber, teeth, anthropometry, dactylography, footprints, scars, tattoos, poroscopy, deoxyribonucleic acid (DNA) fingerprinting, superimposition.
- Examination of mutilated human remains: Skeletal remains and exhumation.
- Medicolegal autopsies:
  - Definition of a medicolegal postmortem.
  - Difference between pathological and medicolegal postmortem.
  - Objectives, procedures, formalities of medicolegal autopsies.
  - Obscure autopsy.
  - Special procedures in suspected poisoning.
  - Precautions in autopsy of human immunodeficiency virus (HIV) infected body, radiation injury.
- Mechanical injuries and wounds:
  - Definition, classification and differentiation of abrasion, contusion, laceration, chop wounds, incised wounds, stab wounds.

- Accidents due to vehicles—primary and secondary impact injury, crush syndrome, reconstruction of accidents, railway injuries.
- Differences between antemortem and postmortem injuries.
- Weapons—weapons, dangerous weapons and elementary ballistics.
- Wounds due to weapons—injuries by dangerous weapons, firearm wounds, blast injuries, stab wounds, incised wound, defense cuts, hesitation cuts, self-inflicted injuries, fabricated wounds.
- Workman's Compensation Act.
- Justifiable homicide, culpable homicide and grievous injury.
- Examination of an injury case:
  - Differences between accidental, suicidal and homicidal injuries.
  - Types of injuries—simple and grievous.
  - Wound as a cause of death—primary, secondary.
  - Situation and character of wounds—number, direction, extent and age of injury.
  - Injuries of various sites.
    - Head: Scalp wounds, fracture of skull, coup, contrecoup injuries.
    - Intracranial hemorrhages, its location and extent. Injury to brain and spinal cord, thoracic, abdominal, pelvic viscera.
  - Wound certification.
- Injuries due to physical agents, and their medicolegal importance; cold, heat, burns, electricity and lightning.
- Asphyxial deaths: Definitions, causes, types, postmortem appearance and medicolegal significance of suffocation, drowning, hanging, throttling, strangulation, traumatic asphyxia, lynching, judicial hanging and bandsola.
- Death due to malnutrition, neglect.
- Dowry deaths.
  - Virginity: Definition and signs. Defloration.
- Sexual offences:
  - Rape—definition, examination of victim and the accused in case of rape, gang rape, custodial rape
  - Incest
  - Unnatural offences—tribadism, bestiality, buccal coitus, sodomy
  - Sexual perversions—sadism, masochism, transvestism, voyeurism, indecent assault.
- Legitimacy, paternity, disputed paternity, medicolegal significance of impotence, sterility and artificial insemination; superfetation and superfecundation; atavism; sterilization.
- Pregnancy and delivery: Pregnancy—signs of pregnancy in the living and in the dead; Delivery—signs of recent and remote delivery in the living and in the dead; Abortion—natural and artificial, therapeutic miscarriage; complications of miscarriage; investigation in deaths due to abortion. Medical Termination of Pregnancy Act, 1971.
- Infanticide: Definition and medicolegal consideration—viability; determination of the age of the fetus; method of demonstration of centers of ossification; rule of Haase, signs of live birth; Hydrostatic test—maceration, postmortem finding to differentiate stillbirth from live

birth. Battered baby syndrome and Munchausen syndrome by proxy, sudden infant death and cot death, precipitate labor.

- Biological fluids: Examination, preservation, dispatch and identification of bloodstains by microchemical, spectroscopic and precipitation test. Blood grouping in disputed paternity; group specific substances; hazards of blood transfusion.
- Seminal stains: Examination, identification, collection, preservation, dispatch.
- Biomedical waste: Types, potential risks and their safe management.

*Desirable to Know*

- Brief update on recent advances: human leukocyte antigen (HLA) typing, DNA typing.

## II. Forensic Psychiatry

*Must Know*

- Definition, types of mental disorders, lucid interval.
- Mental Health Act (1987).
- Diagnosis of mental illness and feigned mental illness.
- Testamentary capacity, restraint, insanity with reference civil and criminal responsibilities, doctrine of diminished responsibility, McNaughten's rule.

## III. Medical Jurisprudence

*Must Know*

- Indian medical council and state medical councils—their disciplinary control.
- Indian medical register, rights and privileges of registered medical practitioner, penal erasure, infamous conduct and disciplinary committee.
- Code and law of medical ethics, unethical practice, dichotomy.
- Professional secrecy, privileged communication.
- Malpractice: Civil, criminal and ethical.
- Consent, negligence, vicarious liability, doctrine of res-ipsa-loquitur, contributory negligence, Consumer Protection Act.
- Duties of a medical practitioner towards his patient and the society.
- Human Organ Transplantation Act of 1994.
- Prenatal Diagnostic Techniques (PNDT) Act (Revised, 1994).
- Sex determination by amniocentesis.
- Euthanasia.
- Torture medicine.
- The biomedical waste (Management and Handling) (Second Amendment) Rules, 2000.

## IV. Toxicology

*Must Know*

- General aspects of poisoning. Duties of doctor in cases of poisoning. medicolegal autopsy in poisoning, preservation and dispatch of viscera for chemical analysis. Role of forensic science laboratory. Laws related to poisons.

- Types of poison, diagnosis, principles of therapy and medicolegal aspects of:
  - Corrosive poisons: Strong mineral acids like carbolic acid, oxalic acid, sulfuric acid, nitric acid, hydrochloric acid, alkalies.
  - Metallic poisons: Lead, mercury copper, arsenic.
  - Animal poisons: Snakes, scorpions, bees, wasps.
  - Delirants: Dhatura, cannabis and cocaine.
  - Somniferous agents: Opium, morphine and pethidine.
  - Inebriants: Methyl and ethyl alcohol.
  - Gaseous poisons: Carbon monoxide, carbon dioxide, war gases.
  - Anesthetic agents: Chloroform and ether.
  - Cardiac poisons: Aconite, cerbera thevetia and Nerium odorum, oleander, hydrocyanic acid.
  - Miscellaneous: Aspirin, paracetamol, barbiturates, diazepam and antihistaminics.
  - Insecticides: Organophosphorus compound, endrin, kerosene, turpentine, rodenticides.
  - Food poisoning: Botulism.
  - Organic vegetables: Abrus, calotropis.

#### *Desirable to Know*

- Inorganic nonmetallic poisons: Phosphorus.
- Metallic poisons: Antimony, nitrites and arsenic.
- Vegetable alkaloids.
- Spinal poisons: Strychnine.
- Paralytic agents.
- War gases and industrial gases: Methyl isocyanate (MIC)
- Sedatives: Chloral hydrate and bromides.
- Mechanical poisons.
- Drug dependence.

#### **PRACTICALS**

- Demonstration of ten medicolegal autopsies.
- Age estimation from bones, X-rays, dentition.
- Injuries and weapons.
- Examination of intoxicated persons.
- Possible videotape of examination of victim and accused in sexual offences.
- Specimens of poisons.

#### **Skills**

- Examine and prepare proper certificates in the following medicolegal situations:
  - Injured patient
  - Sexual offences.
  - Determination of age
  - Intoxicated patient.
- Prepare proper certificates of birth and death.
- Prepare dying declaration.

- Give evidence in a court of law as an expert witness.
- Collect and do proper labeling, preservation and dispatch of medicolegal specimens.
- Witness, record the findings and issue a report for a medicolegal autopsy.
- Diagnose and manage common acute and chronic poisonings.

**Practical Exercises**

- Medicolegal autopsies: Witnessing and recording (10 cases)
- Age estimation of an individual by physical, dental and radiological examination.
- Examination of skeletal remains.
- Study of:
  - Lethal weapons
  - Wet specimens/models/photography/microslides like sperm, diatoms, hairs, human and animal red blood cells (RBCs).
  - Poisons
- Medical certificates/medicolegal reports, physical fitness, sickness and death certificates, injury report, drunkenness, sexual offences.
- Students should be taken to courts whenever possible to acquaint themselves with the court proceedings.

**UNIVERSITY EXAMINATION PATTERN****Eligibility for Writing the University Examination**

The candidate should have at least 35% aggregate in the two of the three internals conducted by the college and should also have minimum 75% attendance in Theory and Practical classes conducted.

**Criteria for Passing the University Examination**

The candidate should secure minimum 50% in the university theory examination (University theory + Viva voce) and the university practical examinations separately. Internal assessment marks would not be considered for passing criteria, however, they would be added to final marks to determine class of passing.

**Distribution of Marks**

	Internal Assessment		University Examination	
	Maximum marks	Minimum marks to qualify	Maximum marks	Minimum marks to pass
Theory examination	20 marks	7 marks	100 marks	60 marks
Viva voce	—	—	20 marks	—
Practical examination	20 marks	7 marks	40 marks	20 marks

**Theory Examination**

There shall be one theory paper carrying 100 marks. The pattern of questions would be of three types.

2 Long Essay Questions	2 × 10 marks	20 marks
10 Short Essay Questions	10 × 5 marks	50 marks
10 Short Answer Questions	10 × 3 marks	30 marks
<b>Total</b>		<b>100 marks</b>

**Distribution of Chapters in for University Examination with Weightage of Marks**

Topics	Marks
Forensic medicine (Topic—1, 2, 3, 4) and forensic jurisprudence	12 marks
Forensic medicine (Topic—5, 6, 7, 8)	12 marks
Forensic medicine (Topic—9, 10, 11)	12 marks
Forensic medicine (Topic—12, 13, 14, 15)	12 marks
Forensic medicine (Topic—16, 17, 18)	10 marks
Forensic medicine (Topic—19, 20, 21)	12 marks
Forensic psychiatry	10 marks
Toxicology	20 marks
<b>Total</b>	<b>100 marks</b>

Topics assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of topics is inevitable and students are advised to be prepared to answer overlapping topics.

**Practical Examination**

Practical examination will carry 40 marks. The distribution of marks for different components are:

<i>Exercise</i>	<i>Marks</i>
Age estimation	10 marks
X-rays/bones	10 marks
Autopsy questions	5 marks
Spotters	10 marks
Medical certificates	5 marks
<b>Total</b>	<b>40 marks</b>

**Viva Voce Examination**

The viva voce examination shall carry 20 marks and all the examiners will conduct the viva examination separately for each candidate.

## Question Bank

NYNRD SNGY

## Section I: Forensic Medicine

## CHAPTER 1

## INTRODUCTION

None

## CHAPTER 2

## LEGAL PROCEDURE

## Long Essays

- |                                                                                                                                                         |       |   |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|----------------------------------------|
| 1. Define inquest. What are the types of inquest carried out in the India? Discuss their procedure and circumstances in which it is done.               | 3     | 3 | D10(RS2), D15(RS3), J02, J05, D06, J12 |
| 2. What is subpena? Describe the procedure of recording of evidence in a court of law?                                                                  | 5, 9  | 4 | D05                                    |
| 3. Describe the procedure of recording evidence in court. Write briefly on dying declaration.                                                           | 9, 6  | 7 | J13(RS3)                               |
| 4. What is the procedure of recording evidence in a court of law in criminal cases? What should be the conduct of the doctor as a witness in the court? | 9, 10 | 7 | J12(RS2)                               |

## Short Essays

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|-----------------------------------------------------------------------------------------------------------------------------------------------|---|---|------------------------------|
| 1. Inquest (types).                                                                                                                           | 3 | 3 | D08(RS2), J07                |
| 2. Police inquest.                                                                                                                            | 3 | 3 | J14(RS3), J15(RS3), J06, J15 |
| 3. Magistrate inquest (indications).                                                                                                          | 4 | 3 | D16(RS3), J01, D05, D07      |
| 4. Courts in India and their powers.                                                                                                          | 4 | 3 | D16                          |
| 5. High court.                                                                                                                                | 4 | 3 | J15(RS3)                     |
| 6. What is summons (subpena)? What should a doctor do if he receives summons from two courts for the same day?                                | 5 | 4 | D07(RS2), D01, J05, D13      |
| 7. Conduct money.                                                                                                                             | 5 | 4 | J15(RS3)                     |
| 8. Describe in brief the various types of medical certificates and medicolegal reports required to be issued by a doctor in medical practice. | 6 | 5 | D11(RS2)                     |
| 9. Exceptions to oral evidences.                                                                                                              | 7 | 6 | D10                          |

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	NYNRD	SNGY	
10. Medical evidence.	5	4	D10
11. Enumerate the various types of documentary evidences. Add a note on dying declaration.	6	5	D02
12. Dying declaration (recording, medico-legal significance).	6	5	J07(RS2), D09(RS2), J10(RS2), D99, D00, J05, D05, D06, D09, D12
13. Write in detail about various types of witnesses in a court of law. Add a note on hostile witness.	8	6	J00, D04
14. Describe the procedure of recording of evidence of a doctor in court of law.	9	7	J11(RS2)
15. Procedure and objectives of cross examination.	9	7	D07, J09, D14
16. Conduct of doctor in witness box.	10	—	J13
<b>Short Answers</b>			
1. Magistrate's inquest.	4	3	J11(RS2)
2. Medical examiner system.	4	—	D13(RS3)
3. Types of courts.	4	3	D06(RS2)
4. Supreme court of India.	4	3	J14(RS3)
5. Powers of 1st class judicial magistrate.	4	4	D10
6. Juvenile court.	4	4	D08, J09
7. Summons.	5	4	D09(RS2), D10(RS2), D11(RS2), D99, D08, D10
8. Conduct money.	5	4	D09(RS2), J16(RS3), J05, D07, J08, D11
9. Dying declaration.	6	5	J08(RS2), D07
10. Types of witness.	8	6	D16
11. Expert witness.	8	6	D99, D08, J12
12. Hostile witness.	8	6	J03, D15
13. Perjury.	8	6	D13(RS3), D01, J04, J13, J15
14. Oath.	9	7	D09, D12, D14
15. Examination in chief.	9	7	D13
16. Leading questions.	9	7	D07(RS2)

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	NYNRD	SNGY	
17. Cross examination (objectives).	9	7	D06(RS2), D09(RS2), D12(RS3), D00, D02, D03, J07
18. Re-examination.	10	7	J10
19. Role of doctor as a witness in the court.	10	—	J08(RS2)

**CHAPTER 3****MEDICAL LAW AND ETHICS****Long Essays**

1. Describe the constitution and functions of Medical Council of India.	14	12	D02
2. Define infamous conduct. Explain with suitable examples. Mention how states medical council takes disciplinary action for infamous conduct.	17, 16	13	D14(RS3), D15(RS3)
3. Explain the term medical negligence and its ingredients. Describe civil and criminal negligence with suitable examples. Describe the precautions and defences by a doctor to avoid a charge of negligence.	21, 24, 26	16	D08(RS2), D11(RS2), D01, J04, J09, D11
4. Define medical negligence. Explain the various ingredients of medical negligence. Add a note on contributory negligence.	21, 24	16	D12(RS3)
5. Define and explain the ingredients of medical negligence. Explain the ingredients of a valid informed consent.	21, 29	16, 18	D14
6. Discuss consent in medical practice. Write briefly on Consumer Protection Act.	29, 373	18, 26	J16(RS3)

**Short Essays**

1. Duties of a doctor towards the state.	—	—	J10
2. Describe the functions of Indian Medical Council (IMC).	15	12	J08(RS2), D10(RS2), D10
3. Role of IMC with regards to medical education.	15	12	D01
4. Functions of state medical council.	16	12	J11, D13, J15
5. Describe how Karnataka Medical Council takes disciplinary action over registered medical practitioner (RMP).	16	13	J01

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	NYNRD	SNGY	
6. Infamous conduct (professional misconduct).	17	13	D09(RS2), J10(RS2), J11(RS2), D00, J05, J07, D11, J13
7. Warning notice.	17	13	J07(RS2)
8. Duties of a doctor towards his patient and the society.	18	14	D16
9. Explain professional secrecy with suitable examples.	19	15	J00
10. Privileged communication.	20	15	J07(RS2), D11(RS2), J12(RS2), J14(RS3), D06, D16
11. Medical negligence.	21	16	D99
12. Liability for civil negligence by doctors. What are the main conditions that are to be satisfied?	21	16	D04
13. Define and classify medical negligence. Add a note on respondent superior.	21, 27	16	D09(RS2)
14. What is res-ipsa-loquitur? How will you defend yourself in a situation of res-ipsa-loquitur?	23	16	J08(RS2), J03, D08
15. Contributory negligence.	24	17	D07(RS2), J10
16. Therapeutic misadventure.	26	17	J12(RS2)
17. Vicarious liability.	27	17	D13(RS3)
18. Consent—definition, classification, informed consent.	29	18	D10(RS2)
19. Informed consent—ingredients.	29	18	D07, J10, D13
20. Discuss 'valid consent for medical treatment'.	29	18	J09(RS2)
21. Write about euthanasia.	31	19	D02, D05, D07
22. Malingering.	31	19	D07(RS2)
<b>Short Answers</b>			
1. Indian Medical Register.	15	12	D16
2. Role of IMC with regards to penal erasure.	15	12	D00
3. State medical councils—functions.	16	12	J09(RS2), J09
4. Hippocratic oath.	16	—	D10(RS2)
5. Mention two circumstances when state medical council initiates disciplinary action against registered medical practitioner (RMP).	16	13	J00

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	NYNRD	SNGY	
6. Penal erasure (erasure of name)/ professional death sentence.	16	13	J02, J03, D03, D05, J08, D09, J12, J13, J15, D15
7. Warning notice.	17	13	D06, D08, D14
8. Dichotomy.	17	13	J11(RS2), D09, D11, D13
9. Covering.	17	14	J15(RS3), D16(RS3)
10. Write about dichotomy and covering.	17	13	D01
11. Rights of registered medical practitioners.	18	14	J12
12. Professional secret.	19	15	D07(RS2), J13(RS3), D05
13. Privileged communications.	20	15	D06(RS2), D09(RS2), D99, D03, J08
14. Duties of patients with its significance in negligence suits.	21	14	D00
15. Res-ipsa-loquitur.	23	16	J04, J10, D13
16. Novus actus interveniens.	23	16	D06
17. Corporate negligence.	25	17	J02
18. Therapeutic misadventure.	26	17	D14
19. Vicarious liability (vicarious responsibility).	27	17	D02, D03, D05, D08
20. Product liability.	28	17	J02
21. Types of consent in medical practice.	29	18	J08(RS2), D08(RS2)
22. Implied consent.	29	18	J13, J14
23. Informed consent.	29	18	J11(RS2), J07, J12
24. Rules of consent.	29	18	D06(RS2)
25. Loco-parentis.	30	19	D99, J00, J10
26. Euthanasia.	31	19	D13
27. Malingering.	31	19	D07

**CHAPTER 4****IDENTIFICATION****Long Essays**

- |                                                                                                                                                                                                   |        |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|-----|
| 1. Define and classify identification.<br>What are the parameters that help in identifying the individuals? Describe dactylography. Describe the role of fingerprints in personal identification. | 33, 54 | 198 | J15 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|-----|

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	NYNRD	SNGY	
2. What are different methods of determining age of a person? Write about medicolegal importance of age.	35, 51	200, 207	D03
<b>Short Essays</b>			
1. Identification procedures to be adopted in air crash disasters.	—	—	J14
2. Define identity. How will you establish sex of an individual under different circumstances?	33, 34	198, 209	J08(RS2)
3. Cephalic index.	34	214	D07(RS2), J15(RS3), D16(RS3), D09
4. Define Barr body. Outline procedure of establishing sex of a person.	34	209	J07
5. Intersex.	34	210	J12(RS2), J11
6. How will you estimate the age of a person?	35	200	J09(RS2)
7. Gustafson's method of age estimation.	42	202	D99, J00, D10
8. Write about medicolegal importance of age.	51	207	J05
9. Age with reference to kidnapping from lawful guardianship.	51	208	J15
10. Medicolegal importance of age 16 and age 18 years.	51	208	J11
11. Anthropometry.	53	199	J07(RS2), D11
12. Dactylography.	54	198	D11(RS2), D03, J04, J05, J08, D13
13. Superimposition—procedure and medicolegal importance.	53	199	D12(RS3), D00, D05, D06, J15
14. Tattoo marks (medicolegal importance).	57	216	J01, D02, D05, D09
15. Briefly discuss medicolegal importance of teeth.	60	—	D08(RS2), J01, J02, D04, D08, D10
16. Identity by teeth.	60	—	D16
<b>Short Answers</b>			
1. Corpus delicti.	33	198	J08(RS2), D02, D14
2. Procedure of identity in unknown dead bodies.	33	198	J01, D04

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	NYNRD	SNGY	
3. Cephalic index.	34	214	J01, D01, J02, D04, J05, D05, J08, J09, J11
4. Nuclear sexing (sex chromatin).	34	209	J01, D04, D10, D11
5. Intersex.	34	210	J09
6. Concealed sex.	35	211	J02
7. Mixed dentition.	41	—	J14
8. Secondary sexual characters.	49	205	D00
9. Medicolegal importance of age 12 years.	51	207	J07(RS2)
10. Medicolegal aspects of age 16 years.	51	208	J06
11. Medicolegal importance of age 18 years.	51	208	J04
12. Rule of Haase.	52	205	J10(RS2), D12(RS3), D15(RS3), J08, D10, J12
13. Anthropometry.	53	199	D09(RS2), J03, D12, D15
14. Dactylography.	54	198	J11(RS2), J00, J07
15. Poroscopy.	55	199	D06(RS2), D13(RS3), J01, D04, D09
16. Locard's method.	55	199	D15(RS3)
17. Methods used by criminals to mutilate finger prints.	55	—	J08(RS2)
18. Foot prints.	56	—	J16(RS3), D99, D12
19. Lip prints.	56	199	D07
20. Superimposition technique (photography).	53	199	D09(RS2), J03, J05, J08
21. Scars (medicolegal importance).	56	216	J14(RS3), D10, J13
22. Tattoos.	57	216	J04, J12
23. Occupational marks.	58	—	J06, D08
24. Human hair—medicolegal importance.	58	215	J10(RS2), D13(RS3), J01, J02, D02, D04, J13
25. Bite marks—medicolegal importance.	61	—	D06(RS2), J01, D04, D08

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## CHAPTER 5

## MEDICOLEGAL AUTOPSY

## Short Essays

1. Objectives of a fetal autopsy.	—	—	J14
2. Write about the objectives of medicolegal autopsy and clinical autopsy.	63	71	J03
3. Difference between medicolegal and clinical (pathological) autopsy.	—	—	J15(RS3), D16(RS3)
4. Objectives and formalities of medicolegal autopsy.	63	71	J13(RS3), J16(RS3), J15, D16
5. Describe the dissection of heart at autopsy.	66	72	D15
6. Enumerate the precautions to be taken while handling and performing autopsy examination on an HIV positive dead body.	68	—	D06(RS2)
7. Preservation of viscera in a suspected case of poisoning (for chemical analysis).	70	73	D00, D03, J05, D06, D09, J15
8. Preservation, packing and dispatch of viscera in a case strychnine poisoning.	70	73	J14
9. Examination of mutilated human remains.	72	—	J14(RS3)
10. Explain the objectives of skeletal examination.	73	—	J04
11. Briefly describe exhumation (objectives and procedure).	75	74	J09(RS2), D10(RS2), D11(RS2), D14(RS3), D15(RS3), J16(RS3), J00, J01, D01, J09, J10, J11, D13, D14

## Short Answers

1. Types of autopsy.	—	71	D08(RS2)
2. Aims and objective of medicolegal autopsy.	63	71	J01, J02, D03, D04, J08
3. Primary skin incision for opening the body during autopsy.	64	72	J07(RS2), D11(RS2), D00, J01, D01, D04, D09, D11

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	NYNRD	SNGY	
4. Heart dissection procedure at autopsy.	66	72	J04, D14
5. Stomach dissection at autopsy.	66	73	D13
6. Osteometric board.	74	—	D06(RS2), J11
7. Exhumation.	75	74	D13(RS3), J03, J05, D05, J06, D06
8. Second autopsy.	75	75	D02

**CHAPTER 6****DEATH AND ITS CAUSE****Short Essays**

1. Differentiate between somatic and molecular death.	—	—	D10
2. Brainstem death and its significance.	76	40	J16(RS3), D03, J08, D10
3. Obscure autopsy.	82	75	D14(RS3), D15(RS3), J01, J06
4. Acute neurogenic cardiovascular failure (vagal inhibition of the heart).	82	—	D99, J07
5. Causes of sudden natural deaths.	83	40	J15

**Short Answers**

1. Somatic death.	76	39	J05, D05
2. Brainstem death.	76	40	D06(RS2), J08(RS2)
3. Molecular death.	77	39	D07(RS2)
4. Tardieu's spots.	80	133	J10
5. Negative autopsy.	81	75	D08
6. Obscure autopsy.	82	75	D09, J13

**CHAPTER 7****POSTMORTEM CHANGES****Long Essays**

1. Define death. Classify signs of death. Discuss medicolegal importance of each one of them.	76, 85	45	J09(RS2)
2. Enumerate immediate signs of death. Discuss changes occurring in the muscles after death.	85, 90	45, 48	D07
3. Define death. Enumerate postmortem changes after death. Add a note on rigor mortis.	76, 85, 91	45, 48	J13(RS3), J02, D16

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	NYNRD	SNGY	
4. Describe the changes which takes place after death and how will you calculate time since death.	85, 100	45, 55	J10(RS2)
5. Mention the various factors that help in estimating the time since death. Describe rigor mortis in brief.	100, 91	55, 48	J11(RS2)
6. What is time since death? What is its significance? Mention the various factors that help in establishing the time since death.	100	55	D00, J07
7. Enumerate the postmortem signs useful for estimation of time since death. Describe the use of early signs of death to estimate time since death.	100	55	J08(RS2)

**Short Essays**

1. What are the late changes after death? Write a note on mummification.	85, 99	45, 55	D08
2. What is suspended animation? What is its significance? Mention three conditions where it is seen.	85	39	D10(RS2), D01, J06
3. Algor mortis (postmortem cooling).	86	45	D10(RS2), D12(RS3), D02, D13
4. Postmortem staining (postmortem lividity/postmortem hypostasis).	87	47	J03, D06, J08, J13
5. Estimation of time since death from postmortem stains.	88	47	J11
6. Changes in the muscle after death.	90	48	D14
7. What are the changes occur in muscles after death. Write about cadaveric spasm.	90, 92	48, 51	J05
8. Rigor mortis.	91	48	D07(RS2), D09(RS2), J15(RS3), D16(RS3), D99, J00, D04
9. Proximodistal progression of rigor mortis. Explain.	91	49	J14
10. Discuss the conditions which mimic rigor mortis.	92	50	D08(RS2)
11. Differences between cadaveric spasm and rigor mortis.	93	51	J09
12. Putrefaction.	94	52	J12(RS2), J14(RS3)

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	NYNRD	SNGY	
13. Adipocere.	98	54	D13(RS3), J10
14. Mummification.	99	55	J02
15. Estimation of time since death.	100	55	D12, J13
16. Entomology of the cadaver and its significance.	100	56	J07(RS2), J04, J14
<b>Short Answers</b>			
1. Tetany.	—	—	J04
2. Changes after death.	85	45	J09(RS2)
3. Enumerate and classify "postmortem changes"	85	45	D06(RS2)
4. Suspended animation.	85	39	D15(RS3), D02, D07, D08, J14
5. Eye changes after death.	86	45	D01, J02
6. Cooling of body.	86	45	D08(RS2)
7. Postmortem calorificity.	87	47	D11(RS2), D99
8. Time since death from postmortem staining.	88	47	J00
9. Primary flaccidity.	90	48	J15
10. Rigor mortis.	91	48	D14(RS3)
11. Heat stiffening.	92	50	D12
12. Cadaveric spasm.	92	51	D09(RS2), D12(RS3), J02, D05, D06, J12, J13
13. Cold stiffening.	92	51	J13
14. Color changes in decomposition.	94	52	J00
15. Foamy liver.	97	53	J04
16. Casper's dictum.	98	53	D10
17. Adipocere formation (medicolegal aspects).	98	54	D09(RS2), J07, J09
18. Mummification.	99	55	D08(RS2), D03, D09
19. Methods of preservations of dead bodies.	100	56	D00
20. Embalming.	100	56	J13(RS3), J14(RS3)
21. Cadaveric entomology.	100	56	D03
22. Presumption of death.	102	41	J10(RS2), J16(RS3), D13

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## CHAPTER 8

## MECHANICAL INJURIES

## Long Essays

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|--------------------|
| 1. Classify mechanical injuries. Define, classify and mention medicolegal importance of abrasion.                                                                                                          | 103, 104      | 81       | D08(RS2), J05, J09 |
| 2. Classify mechanical injuries. Define contusion. How do you estimate the age of contusion?                                                                                                               | 103, 106      | 81, 82   | D09                |
| 3. Classify mechanical injuries. What are the differences between lacerations and incised wounds? On what parts of body 'hesitation cuts' are seen?                                                        | 103, 110, 113 | 81, 86   | J15                |
| 4. Define and classify contusion. Differentiate between the contusion and postmortem lividity. What is the medicolegal importance of contusion?                                                            | 106, 109, 108 | 82, 84   | J06                |
| 5. Classify firearms. Draw a neat labeled diagram of the appearance of the entry wound caused by rifled firearm fired from a distance of 8 cm. Describe the purpose and medicolegal importance of rifling. | 122, 124      | 105, 106 | D07(RS2)           |
| 6. Describe in detail the characteristics of entry wound of rifled firearm injuries at varying ranges.                                                                                                     | 130           | 111      | J08                |

## Short Essays

- |                                                                               |     |        |                                   |
|-------------------------------------------------------------------------------|-----|--------|-----------------------------------|
| 1. Abrasion (types, medicolegal importance).                                  | 104 | 81     | J10(RS2), D10(RS2), D00, D02, D12 |
| 2. Patterned injuries.                                                        | 107 | 82, 83 | J12(RS2)                          |
| 3. Contusion.                                                                 | 106 | 83     | J13                               |
| 4. Define contusion. Discuss medicolegal importance of contusions.            | 106 | 83     | D09(RS2)                          |
| 5. Differentiate between postmortem staining and bruise.                      | 109 | 84     | D03, D05                          |
| 6. Lacerated wounds.                                                          | 109 | 84     | J10(RS2), J12, D13                |
| 7. Describe different types of lacerations and their mechanism of production. | 110 | 85     | J09(RS2)                          |

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	NYNRD	SNGY	
8. What is split laceration? Where is it seen? How do you differentiate between incised wound and split laceration?	110	85	J00
9. Incised wounds.	112	85	J12(RS2)
10. Chop wounds.	113	86	J02
11. Stab wounds.	114	86	D13(RS3), D16(RS3)
12. Define a stab wound. What features of medicolegal importance you will note down while examining a stab wound?	114, 118	86	J08(RS2)
13. Explain the various causes of death in cut throat injuries.	—	—	J04
14. Defence wounds.	120	86	D01
15. Difference between incised and lacerated wounds.	119	—	D99, D15
16. Differences between wounds of entry and exit of gun shot through the head.	133	110	D05
17. Difference between wound of entry and exit in a rifled firearm injury.	133	110	D03, D11
18. Atypical firearm wounds.	134	—	J10
<b>Short Answers</b>			
1. Difference in penetrating and perforating injuries. Give examples.	—	—	D07
2. Comparison microscopy in cartridges and bullets.	136	—	J09(RS2)
3. Types of abrasion.	104	82	D06(RS2)
4. Pressure abrasion.	105	82	J10
5. Ectopic contusion/bruise.	107	83	D13, D14
6. Delayed bruise.	108	83	J15
7. Artificial bruise.	109	83	J14
8. What is meant by tailing of an incised wound? What does it indicate?	112	85	D00, J08, D10
9. Chop wounds.	113	86	J16(RS3)
10. Hesitation cuts.	113	86	J11(RS2), D11(RS2), J02, J12
11. Defence wounds.	120	86	D99, D05
12. Self-inflicted injuries (fabricated injuries).	121	86	D08(RS2), J09(RS2), J14(RS3), D02, D06, J13, J14, D16

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	NYNRD	SNGY	
13. Bore of shotgun.	122	105	J10(RS2), J14(RS3)
14. What is meant by caliber of a firearm?	122	105	D00
15. Choking of gun.	122	105	D05, J11
16. Paradox gun.	122	106	J05, D07
17. Rifling of a firearm.	124	106	J12, J13, D16
18. Smokeless gun powder.	125	108	D13
19. Dum-dum bullets.	125	109	J04
20. Muzzle imprint.	126	111	D12
21. Abrasion collar.	131	110	J15
22. Ricochet bullet.	134	109	D16(RS3)
23. Tandem bullet.	135	109	J11(RS2), D01, J08, D08, D09, D15
24. Test bullet.	136	—	J10

**CHAPTER 9****REGIONAL INJURIES****Long Essays**

1. Enumerate any six types of skull fractures. Describe the mechanism of brain injuries. Add a note on "epidural hemorrhage". 139, 141, 144 91, 92 J07(RS2)
2. What are the objectives of postmortem examination in road accident victims? Describe briefly the injuries sustained by a pedestrian. 148 93 J10
3. Describe the various injuries sustained by a pedestrian being hit by a motor vehicle. Add a note on whiplash injury. 148, 150 93 D16
4. Describe the various injuries sustained by a pedestrian being hit by a motor vehicle. Add a note on railway injuries. 148, 151 93 D12(RS3)
5. Describe the wounds sustained by a pedestrian in a road traffic accident. Add a note on contrecoup injury. 148, 142 93, 92 J14

**Short Essays**

1. Types of fractures of the skull. 139 91 D01, J05, D07, J10, D11
2. Fractures of the vault and base of the skull. 139 91 J04
3. Coup and contrecoup injury. 142 92 J13
4. Intracranial hemorrhages. 144 92 D06

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	NYNRD	SNGY	
5. Extradural hemorrhage.	144	92	D16
6. Subdural hemorrhage.	145	92	J13(RS3)
7. Lucid interval in head injury.	145	92	J02, J03
8. Primary impact injury.	148	93	D07, J11

**Short Answers**

1. Hutchinson's pupils.	—	—	D05
2. Fractures of the vault of skull.	139	91	J14
3. Signature fracture.	140	91	J15
4. Contrecoup injury.	142	92	J10(RS2), D11(RS2), J00, J03, J07, D08
5. Extradural hemorrhages.	144	92	J02
6. Post-traumatic amnesia.	146	92	J01, D04
7. Internal injuries caused by blunt force on abdomen.	147	—	J12(RS2)
8. Primary impact injury.	148	93	D12
9. Secondary injuries in road traffic accident.	149	93	D10
10. Whiplash injury.	150	—	J04, J06, J11
11. Punch drunk.	151	93	J02

**CHAPTER 10****MEDICOLEGAL ASPECTS OF WOUNDS****Long Essays**

1. Classify mechanical injuries. What are the causes of death from wounds.	103, 157	81, 100	J11
2. Classify injuries. Describe grievous hurt.	103, 154	81, 98	J15
3. Define hurt as per Section 319 IPC. Classify and describe the features of lacerated wound, and explain any four components of a grievous hurt.	154, 110	98, 84	D14
4. Section 320 of IPC.	154	98	D99

**Short Essays**

1. Dowry death.	154	99	J15(RS3), D16(RS3)
2. What is dowry death? Describe the inquest procedure in dowry death.	154	99	D06(RS2), J03
3. Describe grievous hurt.	154	98	J11(RS2), D12(RS3), J06, D10, D13, J15
4. Section 320 IPC.	154	98	D15(RS3)

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	NYNRD	SNGY	
5. Define grievous injury. Enumerate in detail, three injuries caused by sharp, blunt and pointed weapons.	154, 103	98	D06(RS2)
6. Causes of death from injuries (immediate and late causes of death).	157	100	J08, J10
7. How do you differentiate between antemortem and postmortem injuries?	161	100	D09(RS2)

**Short Answers**

1. Define injury as per Section 44 IPC.	153	98	J14
2. Justifiable homicide.	153	—	D10(RS2)
3. Dowry death.	154	99	D07(RS2), J13(RS3), J00, J01, D04, J06
4. Grievous hurt.	154	98	D05, J07
5. Dangerous weapons.	155	99	D13(RS3)
6. Crush syndrome.	158	—	J13(RS3)
7. Postmortem injuries.	161	100	D16
8. Differences between antemortem and postmortem injuries.	161	100	J13(RS3)

**CHAPTER 11****THERMAL DEATHS****Long Essays**

1. Define burns and classify. How will you differentiate between antemortem and postmortem burns? What are the causes of death due to burns?	164, 168, 165	122, 124	D05
2. Describe the external and internal postmortem findings in burns. Write briefly on causes of death in burns.	166, 165	124	J14(RS3)
3. Describe the external and internal postmortem findings in burns. Add a note on filigree burns.	166, 173	124, 126	D12

**Short Essays**

1. Explain rule of Wallace and cause of death in burns cases.	165	123	D14
2. Discuss the various causes of death in case of burns.	165	124	D12(RS3), D04, D08
3. Pugilistic attitude.	166	124	D08
4. How do you distinguish antemortem burns from postmortem burns?	168	124	J00, J10

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	NYNRD	SNGY	
5. Differentiate between the burns caused by dry heat, moist heat and chemicals.	170	—	D06(RS2)
6. Electrocution.	170	125	J12
7. Filigree burns.	173	126	D15(RS3), D16(RS3)
<b>Short Answers</b>			
1. Injuries due to exposure to cold.	163	121	J01, D04
2. Frost bite.	163	121	D08
3. Immersion foot.	163	121	D16(RS3)
4. Heat exhaustion.	164	122	D10(RS2)
5. Heat stroke.	164	121	J15(RS3), J09
6. Wilson's classification of burns.	165	122	D12
7. "Rule of 9" (nine).	165	123	J10(RS2), D14(RS3), J00, J05, J06, J10, J12
8. Causes of death due to burns.	165	124	D11
9. Pugilistic attitude.	166	124	J02, J03, D10
10. Heat hematoma.	167	125	D99, D15
11. How do you diagnose that death is due to burns in a charred body?	168	125	D00
12. Antemortem burns and postmortem burns.	168	124	J06
13. Scalds.	170	125	D13(RS3), J13
14. Joule burns.	171	125	J13(RS3), D01, D09, J11, D13, D16
15. Filigree burns.	173	126	J12(RS2), D02, D03, J04, D14

**CHAPTER 12****STARVATION****Short Answers**

1. Death due to malnutrition.	175	152	J16(RS3), D16
2. Postmortem findings in starvation deaths.	175	152	J10(RS2)

**CHAPTER 13****MECHANICAL ASPHYXIA****Long Essays**

1. Define and classify asphyxial deaths. Describe postmortem findings in a case of drowning.	78, 192	133, 135	D09(RS2), D10(RS2)
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	NYNRD	SNGY	
2. Define hanging. What are the various types of hanging? Describe the post-mortem findings in a case of hanging. Enumerate the causes of death. Add a note on judicial hanging.	176, 177, 181	137	J11(RS2), D13(RS3), D14(RS3), D10, D11, D13
3. Define hanging and strangulation. Discuss the differences between the two asphyxial deaths.	176, 181, 184	137, 139	J09(RS2)
4. Define strangulation. Mention the various types. Outline the differences between hanging and strangulation.	181, 184	139	J01, D02, D04
5. Enumerate various violent asphyxial deaths. What are the postmortem findings in a case of throttling? Add a note on hyoid bone fractures.	185, 186	133, 140, 141	D01
6. Define drowning. What are the various types? Describe the postmortem findings in a case of drowning and its medicolegal importance.	191	133	D11(RS2), J12(RS2), J16(RS3), J03, J08, J13
<b>Short Essays</b>			
1. Differences between suicidal and homicidal hanging.	—	—	D05
2. Difference between hanging and ligature strangulation.	184	—	D11(RS2), D03
3. Ligature mark in hanging and strangulation.	184	138, 140	J07(RS2), J08(RS2), D09
4. Throttling (neck findings).	185	140	J13(RS3), J12
5. Bloodless dissection of neck and its indication.	186	—	J14
6. Smothering and its medicolegal aspects.	188	141	D02, J07
7. Cafe coronary.	189	142	J00, D04, J08, J09, D15
8. Traumatic asphyxia.	190	142	J13(RS3), J15(RS3), J02, D05, J06, J09, J11
9. Burking.	190	142	D00, J03
10. Dry drowning.	191	133	J06, D10
11. Describe pathophysiology of salt water and fresh water drowning.	191	134	D08(RS2), J10(RS2), D99
12. Classify asphyxial deaths. Describe autopsy examination findings in a person who died due to drowning.	78, 192	133, 135	D06(RS2)

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	NYNRD	SNGY	
13. Signs of drowning.	192	135	J09(RS2)
14. Features of wet drowning in a body recovered from lake.	192	135	D14
15. External findings in a case of death due to wet drowning.	192	135	D07(RS2), J04
16. Features of salt water drowning.	192	135	J14
17. Sexual asphyxias (auto-erotic death).	196	142	D01, D08
<b>Short Answers</b>			
1. Classification of hanging.	176	137	J09
2. Causes of death in hanging.	176	137	D07
3. Ligature mark of typical hanging.	177	137	J07
4. Partial hanging.	179	137	D00, J02, J12
5. Lynching.	181	138	D16(RS3), J10, J11
6. Judicial hanging.	181	138	J10(RS2), D12(RS3), J05
7. Signs of ligature strangulation.	182	139	D06(RS2)
8. Banskola.	188	139	J00, D01, D07, D15
9. Garroting.	187	139	J03
10. Hyoid bone fractures.	186	141	D10(RS2), D14
11. Smothering.	188	141	J12
12. Gagging.	189	141	J05, J13
13. Overlying.	189	142	J03
14. Café coronary syndrome.	189	142	J07(RS2), D10(RS2), D99, D03, D05
15. Traumatic asphyxia.	190	142	D11(RS2), J14(RS3), J07, J15
16. Burking.	190	142	D13
17. Dry drowning.	191	133	D06
18. Causes of death due to drowning.	192	134	D02, D03
19. Emphysema aquosum.	193	136	J05
20. Paultof's hemorrhage.	193	136	J15
21. Diatoms and significance of examination of diatoms.	194	137	J04, D09, D15

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**CHAPTER 14****IMPOTENCE AND STERILITY****Short Essays**

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|-------------------------------------------------------------------|
| 1. What are the causes of male infertility? Name the method of overcoming each cause.                                                                                                    | 198      | 154 | J08(RS2)                                                          |
| 2. Causes of impotence and sterility in the female.                                                                                                                                      | 198, 200 | 154 | D07                                                               |
| 3. What is artificial insemination? What are the types and indications? Outline the medicolegal aspects. What precautions a doctor has to take while conducting artificial insemination? | 201      | 155 | J11(RS2),<br>D12(RS3),<br>D14(RS3), J01,<br>D04, D09, J13,<br>D15 |
| 4. Criterion of choosing a donor for artificial insemination.                                                                                                                            | 201      | 155 | J04                                                               |
| 5. Surrogate mother.                                                                                                                                                                     | 202      | 156 | D11                                                               |

**Short Answers**

- |                                                    |     |     |                            |
|----------------------------------------------------|-----|-----|----------------------------|
| 1. Medicolegal importance of impotence.            | 198 | 154 | J10(RS2),<br>D10(RS2), D16 |
| 2. Causes of impotency in males.                   | 198 | 154 | D09                        |
| 3. Quoad hanc.                                     | 199 | 154 | D15(RS3)                   |
| 4. Vaginismus.                                     | 200 | 154 | J02                        |
| 5. Sterilization and its medicolegal importance.   | 200 | 154 | D13(RS3)                   |
| 6. Compulsory sterilization.                       | 200 | —   | J09                        |
| 7. Artificial insemination.                        | 201 | 155 | D99                        |
| 8. Medicolegal aspects of artificial insemination. | 201 | 156 | J06                        |
| 9. Surrogate mother.                               | 202 | 156 | J12(RS2), J08              |

**CHAPTER 15****VIRGINITY, PREGNANCY AND DELIVERY****Long Essay**

- |                                                                                                  |     |     |     |
|--------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. What is the medicolegal importance of pregnancy? Write briefly about the tests for pregnancy. | 205 | 164 | J10 |
|--------------------------------------------------------------------------------------------------|-----|-----|-----|

**Short Essays**

- |                                                      |     |     |          |
|------------------------------------------------------|-----|-----|----------|
| 1. Virginity.                                        | 203 | 160 | D09, J12 |
| 2. Virginity and defloration.                        | 203 | 160 | D16      |
| 3. Hymen and its significance in medico-legal cases. | 203 | 161 | J06      |

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	NYNRD	SNGY	
4. What are the various types of hymen? Who is a false virgin?	204	161	D00, J03
5. Describe different causes of rupture of hymen.	204	161	J09(RS2)
6. Discuss medicolegal importance of pregnancy.	205	164	D08(RS2)
7. Signs of pregnancy in living.	205	165	D12
8. Probable signs of pregnancy.	206	166	D12(RS3)
9. Signs of recent delivery.	209	169	J07
10. Sign of recent delivery in the living.	209	169	D07
<b>Short Answers</b>			
1. False virgin.	—	160	D15(RS3), D06, D14
2. Defloration.	203	—	J13(RS3), J16(RS3)
3. Different types of hymen.	204	161	D08(RS2), D14(RS3), J11
4. Medicolegal aspects of pregnancy.	205	164	J01, D04
5. Hegar's sign.	206	166	D14
6. Positive (absolute) signs of pregnancy.	207	166	D14(RS3), J15(RS3), D16(RS3), D06, D09, J12
7. Pseudocyesis (phantom pregnancy).	207	164	D16(RS3), J03, J04, J08
8. Superfecundation.	208	164	D14(RS3), J15(RS3), D12
9. Superfetation.	208	164	D15(RS3)
10. Fetus compressus.	208	—	D16(RS3)
11. Legitimacy.	208	156	J14(RS3)
12. Atavism.	209	157	J01, D04, D07, D13
13. Signs of recent delivery in the living.	209	169	J07(RS2), D13(RS3), D15, D16
14. Lochia.	209	169	D14(RS3), D15(RS3), J11

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**CHAPTER 16****ABORTION****Short Essays**

- |                                                                                                                                          |          |         |                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|----------------------------------------------------------------------------------------------------------------------------|
| 1. Define and classify abortions. What action will you take when a case of suspected criminal abortion is admitted to your nursing home? | 211, 217 | 172     | J09(RS2)                                                                                                                   |
| 2. Natural abortion, therapeutic abortion and criminal abortion.                                                                         | 211      | 172     | D12                                                                                                                        |
| 3. What are the provisions of MTP Act, 1971 and its subsequent amendments?                                                               | 211      | 25      | J07(RS2),<br>J08(RS2),<br>D10(RS2),<br>D11(RS2),<br>J13(RS3),<br>J16(RS3), D00,<br>D01, D03, J08,<br>J12, D13, J14,<br>D15 |
| 4. Discuss the indications and methods of performing medical termination of pregnancy.                                                   | 211, 215 | 25, 172 | D09(RS2), J05                                                                                                              |
| 5. Enumerate the methods of performing a criminal abortion and explain the causes of death.                                              | 212      | 173     | J04                                                                                                                        |
| 6. Complications of criminal abortion.                                                                                                   | 217      | 174     | D09(RS2), D99                                                                                                              |

**Short Answers**

- |                                        |     |     |                                         |
|----------------------------------------|-----|-----|-----------------------------------------|
| 1. Indications of MTP.                 | 211 | 25  | J00                                     |
| 2. Methods used to carry out MTP.      | 215 | 172 | D08(RS2)                                |
| 3. Abortion stick.                     | 214 | 173 | J01, D04, D07                           |
| 4. Complications of miscarriage.       | 217 | 174 | D16                                     |
| 5. Complications of criminal abortion. | 217 | 174 | J07(RS2),<br>J15(RS3),<br>D16(RS3), D09 |

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**CHAPTER 17****SEXUAL OFFENCES****Long Essays**

1. Classify sexual offences. Define rape as per Section 375 IPC. Describe the procedure of examinations of a victim of rape. Describe the signs of rape in a victim of 16 years of age who is virgin. Name the samples to be collected from the victim of rape for laboratory examination and mention their use. 219, 176, 180 J10(RS2), J00, 222, 226 D06, D08, J12, D15
2. Describe the unnatural sexual offences. Write briefly on sexual perversions. 229, 231 182, 184 D13(RS3)

**Short Essays**

1. Classify sexual offences. Write about sodomy. 219, 229 176, 182 D03
2. Outline the procedure of examination of a victim of rape. 222 180 J11(RS2), J14(RS3)
3. Write about the procedure of examination of an accused in a case of rape. 228 182 J07(RS2), D11(RS2)
4. Sodomy. 229 182 J13(RS3), J15(RS3), D16(RS3)
5. Define sodomy. Describe the findings in a habitual passive agent of sodomy. 229 182 D07(RS2), D09
6. Catamite (features). 229 183 J11, J14
7. Habitual passive agent of sodomy. 230 183 J09
8. Tribadism. 231 184 J12
9. Bestiality. 231 184 D11
10. Section 354 IPC. 234 186 D14(RS3)
11. Semen analysis (examination of seminal stains). 234 249 D06(RS2), D12

**Short Answers**

1. Define rape. 219 176 D08(RS2), J09
2. Custodial rape. 220 178 J09(RS2)
3. Statutory rape. 221 178 D15
4. Specimens to be collected from a victim of rape. 226 181 D00
5. Incest. 229 182 D01
6. Unnatural sexual offences. 229 182 J08(RS2)
7. Sodomy. 229 182 J07

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	NYNRD	SNGY	
8. Catamite.	229	183	D10
9. Tribadism.	231	184	J14(RS3), D14(RS3), D02, D05, J08
10. Buccal coitus.	230	184	D15(RS3), J13
11. Bestiality.	231	184	D12(RS3), J00, D07, J10, D16
12. Sadism.	231	184	J12(RS2), D12(RS3), D01, J05, J09, D09, D13
13. Lust murder.	231	184	D07
14. Masochism.	232	184	D02, D10
15. Fetishism.	232	185	J11
16. Transvestism.	232	185	J16(RS3), D03, D06, J13, D14
17. Exhibitionism.	233	185	J12(RS2), D08
18. Voyeurism.	233	185	J11(RS2), D00, D03, D07, D11, D12, J15
19. Indecent assault.	234	186	J03
20. Section 354 IPC.	234	186	J15(RS3)
21. Florence test.	234	249	D14

**CHAPTER 18****INFANT DEATHS****Long Essays**

1. Define infanticide. Enumerate various acts of omission and commission to cause death of infants. 237, 242 191, 194 D06(RS2)
2. Define infanticide. Describe methods usually adopted for carrying out infanticide. Add a note on hydrostatic test. 237, 191, J08(RS2)  
242, 239 194, 193

**Short Essays**

1. Mention the differences between still born and live born fetus. — — J01
2. Macerated fetus. 237 191 D07(RS2)
3. What is 'live birth'? Describe the principle and method of performing hydrostatic test. 238, 239 192 D08(RS2)
4. Signs of live birth. 238 192 D12, D15

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	NYNRD	SNGY	
5. Hydrostatic test (principle, procedure, interference, fallacies).	239	193	J11(RS2), J13(RS3), D03, J04, D09, J11, D12, D14
6. Battered baby syndrome. Outline the features and injuries.	243	194	J14(RS3), D00, D06
7. Sudden infant death syndrome (cot death). Outline the features. Mention the various theories regarding to its causation.	244	195	J12(RS2), J16(RS3), D02, J06, D08, J09
<b>Short Answers</b>			
1. Still born (still birth).	237	191	J10, D12, D13
2. Dead born fetus.	237	191	D99, D08
3. Maceration of fetus.	237	191	J09(RS2), D07
4. Spalding's sign.	238	192	D02, D03, J05, D09, D11, J14, J15, D15
5. Viability of a fetus.	238	192	D07(RS2), D13(RS3), D01, J11
6. Hydrostatic test.	239	193	J00
7. Fallacies of hydrostatic test.	239	193	D08
8. Caput succedaneum.	241	192	J06
9. Precipitate labor (delivery).	242	—	J09(RS2), J14(RS3), J15(RS3), D16(RS3), D05, J09, D12, J14, J15
10. Concealment of birth.	243	31	D08
11. Battered baby syndrome (battered child).	243	194	D07(RS2), J07
12. Münchausen's syndrome by proxy.	244	195	J15(RS3)
13. Sudden infant death/Crib death (cot death).	244	195	J14(RS3), J05, D06, J13, D16

**CHAPTER 19****BLOOD STAINS****Short Essays**

1. Microchemical tests for blood.	248	247	D13(RS3)
2. Procedure and applications of precipitin test.	249	247	D14

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	NYNRD	SNGY	
3. Medicolegal aspects of blood group.	250	248	J08(RS2), J12, J15
4. Disputed paternity.	254	249	D10(RS2), J16(RS3)
5. Write a note on DNA finger printing.	255	256	D10(RS2), J13, D14

**Short Answers**

1. Confirmatory test for blood.	248	247	J07(RS2)
2. Takayama test.	248	247	D08
3. Precipitin test.	249	247	J12(RS2), D15(RS3)
4. Blood group systems.	250	248	D09(RS2)
5. Paternity tests.	250	248	J03, J07
6. Blood grouping in disputed paternity.	250	248	J07(RS2), D12(RS3), J13(RS3)
7. HLA typing.	253	—	J13
8. DNA finger printing/DNA typing.	255	256	D12
9. Applications and limitations of DNA finger prints.	255	256	D06
10. Hazards of blood transfusion.	256	—	D14(RS3), D15(RS3), D12

**CHAPTER 20****ARTEFACTS****Short Essay**

- |                                                                                      |     |   |     |
|--------------------------------------------------------------------------------------|-----|---|-----|
| 1. Explain the artefacts associated with resuscitation and their misinterpretations. | 257 | — | J14 |
|--------------------------------------------------------------------------------------|-----|---|-----|

**Short Answer**

- |               |     |   |          |
|---------------|-----|---|----------|
| 1. Artefacts. | 257 | — | J12(RS2) |
|---------------|-----|---|----------|

**CHAPTER 21****FORENSIC SCIENCE LABORATORY****Short Essay**

- |                                                              |     |     |     |
|--------------------------------------------------------------|-----|-----|-----|
| 1. What is Locard's principle of exchange of trace evidence? | 260 | 246 | J07 |
|--------------------------------------------------------------|-----|-----|-----|

**Short Answers**

- |                                         |     |     |                         |
|-----------------------------------------|-----|-----|-------------------------|
| 1. Locard's principle of exchange.      | 260 | 246 | D07(RS2), D14(RS3), J06 |
| 2. Role of Forensic Science Laboratory. | 260 | —   | D16                     |

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	NYNRD	SNGY	
3. Polygraph.	262	256	J10
4. Truth serum drugs.	263	256	D14(RS3)

**CHAPTER 22****FORENSIC PSYCHIATRY****Long Essay**

- |                                                                                             |          |          |                                    |
|---------------------------------------------------------------------------------------------|----------|----------|------------------------------------|
| 1. Define and classify insanity. What is delusion? Describe the various types of delusions. | 267, 264 | 229, 230 | J15(RS3),<br>D16(RS3), J01,<br>D04 |
|---------------------------------------------------------------------------------------------|----------|----------|------------------------------------|

**Short Essays**

- |                                                                                          |     |     |                                                                                                          |
|------------------------------------------------------------------------------------------|-----|-----|----------------------------------------------------------------------------------------------------------|
| 1. Delusions (types and medicolegal importance).                                         | 264 | 230 | D06(RS2),<br>J07(RS2),<br>D08(RS2),<br>J11(RS2),<br>J13(RS3),<br>D15(RS3), J00,<br>D01, J02, D09,<br>D16 |
| 2. Hallucinations (types).                                                               | 265 | 231 | D14(RS3),<br>J16(RS3), D04,<br>J08, J09                                                                  |
| 3. Define impulse. What are the various types of impulse?                                | 265 | 232 | J10(RS2),<br>J12(RS2), D00,<br>D15                                                                       |
| 4. Lucid interval and its medicolegal importance.                                        | 266 | 233 | D02, D03, J08                                                                                            |
| 5. Types of mental disorders.                                                            | 267 | 229 | J15                                                                                                      |
| 6. Write in brief about different grades of mental subnormality.                         | 267 | 234 | J01, J03                                                                                                 |
| 7. What are the difference between true insanity and feigned insanity?                   | 270 | 235 | D10(RS2),<br>D12(RS3), J00                                                                               |
| 8. Feigned insanity.                                                                     | 270 | 235 | J10(RS2)                                                                                                 |
| 9. Mental Health Act (1987).                                                             | 270 | 26  | D13(RS3),<br>J14(RS3)                                                                                    |
| 10. What are the methods of restraining a mentally ill person.                           | 271 | 26  | J11(RS2)                                                                                                 |
| 11. Write briefly on immediate restraint.                                                | 271 | 26  | J07, D07                                                                                                 |
| 12. Describe the method of 'restraint (admission) on petition' of a mentally ill person. | 271 | 26  | J08(RS2)                                                                                                 |
| 13. Civil responsibility of the insane.                                                  | 272 | 235 | D06(RS2), D08                                                                                            |

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	NYNRD	SNGY	
14. Enumerate 'civil responsibilities' of a mentally ill person. Describe 'management of property'.	272	235	D09(RS2)
15. Testamentary capacity.	273	236	D15(RS3), D06, D11
16. McNaughten's rule.	274	237	D07(RS2), D11(RS2), D13(RS3), D14(RS3), J05, D07, D15
<b>Short Answers</b>			
1. Delirium.	264	230	J07, J09
2. Delusions.	264	230	J06
3. Hallucinations.	265	231	D10(RS2), J04, J05, J15
4. Tactile hallucinations.	265	231	J14
5. Illusion.	265	231	D07(RS2), J15(RS3), J07, D10
6. Impulse.	265	232	D99, J06, J07, D08
7. Kleptomania.	265	232	J11(RS2)
8. Lucid interval.	266	233	D10(RS2), D11(RS2), D12(RS3), D99, D05, D10, D12, D15
9. Amnesia.	267	234	J10
10. Feigned insanity.	270	235	J08(RS2)
11. Restraint of mentally ill patient.	271	26	J16(RS3)
12. Voluntary admission to mental hospital.	271	26	J09(RS2)
13. Write briefly about testamentary capacity.	273	236	D00, J09, D13
14. Criminal responsibility of mentally ill person.	274	237	D10
15. McNaughten's rules.	274	237	D01, J06, D16
16. Doctrine of diminished responsibility.	275	239	D02
17. Automatism.	275	238	J02
18. Somnambulism.	276	238	J12(RS2), J00, J03, D15

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NYNRD SNGY

## Section II: Toxicology

## CHAPTER 23

## GENERAL CONSIDERATION

## Long Essays

- |                                                                                                                                                                                                                                  |          |          |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
| 1. Classify poisons with suitable examples. What are the duties of a doctor in a case of suspected poisoning?                                                                                                                    | 278, 285 | 260, 268 | J03, D15 |
| 2. How do you diagnose poisoning in the living and dead? What are materials to be preserved in the casualty while treating and what are the viscera to be preserved for chemical analysis during autopsy in a case of poisoning? | 282, 70  | 263      | J00      |
| 3. Describe the medical and legal responsibilities of a doctor in a case of suspected poisoning.                                                                                                                                 | 285      | 268      | D06, J07 |
| 4. What are the legal duties of a doctor while treating a case of suspected poisoning? Discuss general principles of treatment of acute poisoning.                                                                               | 285      | 268      | D07      |
| 5. Enumerate the legal duties of a doctor in a poisoning case. Describe the procedure of performing stomach wash in detail.                                                                                                      | 285, 286 | 268      | D12      |
| 6. General lines of treatment of a poisoned patient.                                                                                                                                                                             | 285      | 268      | D99      |

## Short Essays

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|------------------------------------------------------------------------------------------------------------------------------------|----------|-----|-----------------------------------|
| 1. Describe the various routes of excretion of poisons from the body. What methods can be adopted to enhance excretion of poisons? | 280, 289 | 274 | D09(RS2)                          |
| 2. Diagnosis of poisoning in living.                                                                                               | 282      | 263 | J09                               |
| 3. Duties of a doctor in a suspected case of (homicidal) poisoning.                                                                | 285      | 268 | J07(RS2), J16(RS3), J04, D04, J06 |
| 4. Legal duties of doctor in poisoning cases.                                                                                      | 285      | 268 | D12(RS3)                          |
| 5. Gastric lavage/stomach wash.                                                                                                    | 286      | 269 | J10(RS2), D14, J15                |
| 6. Contraindications and indications of gastric lavage.                                                                            | 286      | 269 | J08                               |

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	NYNRD	SNGY	
7. Antidotes (define and classify with suitable examples).	287	270	J14(RS3), J12, D15
8. Define and classify antidotes. Describe mode of action of each group, including chelating agents, with examples.	287	270	D08(RS2), D11(RS2)
9. Universal antidote.	288	272	D14(RS3), D15(RS3)
10. Physiological antidotes.	288	271	J09
11. Chelating agents.	288	271	J09(RS2), D11
<b>Short Answers</b>			
1. Diaphoretics.	289	274	J01, D04
2. Name poisons whose symptoms resemble natural diseases.	—	264	D15
3. Stupefying agents.	—	262	J06
4. Cattle poisons.	278	262	J01, D04, J10
5. Arrow poisons.	278	262	J09(RS2)
6. Aphrodisiacs.	278	—	D02
7. Sites of action of poisons.	280	262	J09(RS2)
8. What are the signs and symptoms in a patient which arouse suspicion of poisoning?	282	263	D00
9. Color changes in cyanide and carbon monoxide poisoning.	282	266	J14
10. Contraindications of gastric lavage.	287	269	J09
11. Universal antidote.	288	272	D07(RS2), D02, D03, J05, D05, J06
12. Physiological (pharmacological) antidote.	288	271	D10, J14
13. Chelating agents.	288	271	J03, J04, J09

**CHAPTER 24****AGRICULTURAL POISONS****Long Essay**

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------|
| 1. Describe the mechanism of action, manifestation, diagnosis and management postmortem findings and medicolegal aspects of organophosphate insecticide poisoning. | 291 | 288 | J07(RS2), D09(RS2), J15(RS3), D16(RS3), D00, D03, D09, D13 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------|

**Short Essays**

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|-----------------------------------------------------|-----|-----|----------|
| 1. Clinical features of organophosphorus poisoning. | 291 | 289 | J13(RS3) |
|-----------------------------------------------------|-----|-----|----------|

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	NYNRD	SNGY	
2. Describe the management of a case of organophosphorus compound poisoning.	292	289	D08(RS2), D02
3. Mode of action and clinical features of carbamate poisoning.	294	290	D14
4. Plant penicillin.	294	290	D07(RS2)
5. Rodenticides.	295	290	D12(RS3)

**Short Answer**

1. Antidotes for organophosphorus poisoning.	293	289	J00
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**CHAPTER 25****CORROSIVE POISONS****Short Essays**

1. Sulphuric acid poisoning.	297	280	D16
2. Vitriolage.	298	281	D15(RS3), D05, D11
3. Nitric acid poisoning.	298	282	J16(RS3)

**Short Answers**

1. Postmortem appearance of gastro-intestinal tract following inorganic acid ingestion.	298	281	J08(RS2)
2. Vitriolage.	298	281	D11(RS2), J08, J12, J14
3. Xanthoproteic reactions.	296	282	J07(RS2), D02, D03, D06, D11
4. Oxaluria.	—	283	D13, J15
5. Urinary findings in phenol and oxalic acid poisoning.	301	284, 283	J14
6. Carbouluria.	301	284	D07(RS2), J11(RS2), J12(RS2), D12(RS3), J08, J09, D12
7. Oochronosis.	301	284	D14

**CHAPTER 26****METALLIC POISONS****Short Essays**

1. Arsenic poisoning.	303	296	J12
2. Enumerate difference between arsenic poisoning and cholera.	304	—	J02

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	MYNRD	SNGY	
3. Chronic mercurial poisoning.	307	300	D13(RS3), J10, J13
4. Plumbism (signs and symptoms of chronic lead poisoning).	307	298	J11(RS2), J12(RS2), D16(RS3)
<b>Short Answers</b>			
1. Acute arsenic poisoning.	303	296	J16(RS3)
2. Dermatological changes in chronic arsenic poisoning.	305	297	J14
3. Plumbism.	307	298	J15(RS3)
4. Blue line on the gums.	308	298	J15
5. Punctate basophilia (basophilic stippling).	308	298	D01, D03, J05
6. Lead line.	308	—	D99

**CHAPTER 27****INORGANIC IRRITANT POISONS****Short Essay**

- |                                             |     |     |                    |
|---------------------------------------------|-----|-----|--------------------|
| 1. What is phossy jaw? Describe the lesion. | 313 | 313 | J02, J03, J07, J08 |
|---------------------------------------------|-----|-----|--------------------|

**Short Answer**

- |                |     |     |     |
|----------------|-----|-----|-----|
| 1. Phossy jaw. | 313 | 313 | D15 |
|----------------|-----|-----|-----|

**CHAPTER 28****ORGANIC IRRITANT POISONS****Long Essays**

- |                                                                                                                                                                                |          |     |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|----------|
| 1. Classify the poisons belonging to the 'irritant' group with one example each. Describe the first aid measures and the hospital management of cobra bite.                    | 278, 322 | 320 | D07(RS2) |
| 2. Differentiate between the poisonous and nonpoisonous snakes. Give the hospital treatment of cobra snake bite poisoning. What viscera will you preserve in snake bite cases? | 320, 323 | 318 | J06      |
| 3. Describe the clinical features and management of a viperine snake bite. Mention the precautions to be taken while using the antidote.                                       | 321, 323 | 320 | J04      |

**Short Essays**

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|-----------------------------------------------------------|-----|-----|-----|
| 1. Difference between poisonous and non-poisonous snakes. | 320 | 318 | D08 |
|-----------------------------------------------------------|-----|-----|-----|

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	NYNRD	SNGY	
2. Snake bite.	319	320	D99
3. Describe the management of a case of poisonous snake bite.	323	320	D06(RS2), J09(RS2), D01
4. Mention signs, symptoms and treatment of scorpion sting.	324	321	J01

**Short Answers**

1. Toxalbumen.	315	315	J04, D14
2. Suis as cattle poisons.	316	316	D11
3. Marking nut.	317	317	J10(RS2)
4. Cantharides.	318	321	J10
5. Priapism.	318	321	D15
6. Treatment of snake bite.	323	320	D11(RS2)
7. Treatment of cobra bite.	323	320	J12(RS2)
8. Scorpions.	324	321	D12(RS3)
9. Management of scorpion sting.	324	321	J14

**CHAPTER 29****CENTRAL NERVOUS SYSTEM DEPRESSANTS****Long Essay**

1. Define toxicology. Discuss toxicological aspects of acute methyl alcohol poisoning. If the victim has died enumerate the autopsy examination findings. 277, 332 259, 333 D06(RS2)

**Short Essays**

1. What is drunkenness? Outline the procedure of examination and certification. 328 332 J03
2. What are the symptoms, signs and management of methyl alcohol poisoning. 332 333 J10(RS2), D11(RS2), D13
3. Opium poisoning. 334 325 D13(RS3)

**Short Answers**

1. McEwan's sign (McEwan's pupil). 327 331 D01, J08, D11, J12
2. Treatment of acute (ethyl) alcohol poisoning. 327 331 D08(RS2)
3. Define drunkenness. 328 332 J15
4. Widmark's formula. 330 332 J10
5. Breath analyser. 330 333 D00, J03
6. Delirium tremens. 331 331 D09(RS2), J00, J08
7. Enumerate two psychiatric conditions that result from chronic alcoholism. 331 331 J00

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	NYNRD	SNGY	
8. Saturday night paralysis.	331	332	D99
9. Why ethyl alcohol is used as antidote in methyl alcohol poisoning?	332	334	D00
10. Treatment of morphine poisoning.	335	326	D16
11. Pethidine.	336	—	J16(RS3)

**CHAPTER 30****PSYCHOTROPIC DRUGS**

None

**CHAPTER 31****DELIRIANT POISONS****Long Essays**

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|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------------|
| 1. Classify poisons acting on central nervous system. Describe the signs, symptoms, treatment and medicolegal importance of datura poisoning. | 278, 344 | 261, 342 | J14(RS3), D10 |
| 2. Describe the manifestations, treatment and medicolegal importance of datura poisoning.                                                     | 344      | 342      | J13           |

**Short Essays**

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|----------------------------------------------------------------------|-----|-----|-----------------------------------|
| 1. Signs and symptoms of atropine poisoning.                         | —   | —   | D99, D15                          |
| 2. Datura poisoning (signs and symptoms and medicolegal importance). | 344 | 342 | J10(RS2), J11(RS2), J13(RS3), D06 |
| 3. Ideal roadside poison.                                            | 345 | 342 | J15(RS3)                          |
| 4. Cannabis indica.                                                  | 345 | 342 | D13(RS3), J12                     |
| 5. Cocaine poisoning.                                                | 347 | 343 | J16(RS3)                          |
| 6. Cocainism.                                                        | 347 | 344 | D14(RS3)                          |

**Short Answers**

- |                                                    |     |     |                         |
|----------------------------------------------------|-----|-----|-------------------------|
| 1. Signs and symptoms in case of datura poisoning. | 344 | 342 | D08                     |
| 2. Preparations of Cannabis indica.                | 345 | 343 | J08(RS2)                |
| 3. Hashish.                                        | 346 | 343 | D99, D15                |
| 4. Run amok.                                       | 346 | 343 | J03, D06, D09, D10, D14 |
| 5. Magnan's symptoms (syndrome)/ cocaine bugs.     | 347 | 344 | J06, J07                |

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**CHAPTER 32****DRUG DEPENDENCE****Short Essays**

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|---------------------------------------------------------------------|----------|-----|-----|
| 1. Define drug abuse. Name constituents of <i>Cannabis indica</i> . | 348, 345 | 366 | J07 |
| 2. Drug addiction.                                                  | 348      | 366 | D10 |

**Short Answers**

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|--------------------------|-----|-----|--------------------|
| 1. Designer drugs.       | —   | —   | D14                |
| 2. Drugs of habituation. | 348 | 366 | J10                |
| 3. Drug dependence.      | 348 | 366 | J13(RS3), D01, D13 |
| 4. Addiction.            | 348 | 366 | J06                |

**CHAPTER 33****SPINAL POISONS****Short Essays**

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|------------------------------------------------------------------------|-----|-----|------------------------------|
| 1. Signs and symptoms of strychnine poisoning.                         | 352 | 350 | D06                          |
| 2. Enumerate the differences between strychnine poisoning and tetanus. | 353 | —   | D14(RS3), D15(RS3), D04, D08 |

**Short Answers**

- |                                               |     |     |               |
|-----------------------------------------------|-----|-----|---------------|
| 1. Mechanism of action of strychnine.         | 352 | 350 | D12           |
| 2. Symptoms and signs of strychnine poisoning | 352 | 350 | D11(RS2)      |
| 3. Treatment of strychnine poisoning.         | 353 | 350 | J07(RS2), D16 |

**CHAPTER 34****CARDIAC POISONS****Short Essays**

- |                       |     |     |          |
|-----------------------|-----|-----|----------|
| 1. Cardiac poisons.   | 354 | 352 | J12(RS2) |
| 2. Aconite poisoning. | 356 | 354 | D06(RS2) |

**Short Answers**

- |             |     |     |               |
|-------------|-----|-----|---------------|
| 1. Aconite. | 356 | 354 | D16(RS3)      |
| 2. Hippus.  | 357 | 354 | J11(RS2), D01 |

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**CHAPTER 35****ASPHYXIANTS****Long Essay**

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|---------------------------------------------------------------------------------------------------------------|-----|-----|----------|
| 1. Describe the mode of action, signs and symptoms, treatment and postmortem appearance of cyanide poisoning? | 362 | 355 | J11, J14 |
|---------------------------------------------------------------------------------------------------------------|-----|-----|----------|

**Short Essay**

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|--------------------------------------------------------------------------------------------------------------------------------|-----|-----|--------------------|
| 1. Carbon monoxide poisoning.                                                                                                  | 358 | 359 | D13(RS3)           |
| 2. Describe circumstances in which carbon monoxide (CO) poisoning can occur. How will you manage a case of acute CO poisoning? | 358 | 360 | J09(RS2)           |
| 3. War gases.                                                                                                                  | 361 | 360 | D15(RS3)           |
| 4. How do you treat a case of cyanide poisoning?                                                                               | 363 | 355 | J08(RS2), J02, D02 |

**Short Answer**

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|------------------------------------|-----|-----|-----|
| 1. Treatment of cyanide poisoning. | 363 | 355 | J04 |
|------------------------------------|-----|-----|-----|

**CHAPTER 36****MISCELLANEOUS POISONS****Short Essays**

- |                           |     |   |          |
|---------------------------|-----|---|----------|
| 1. Aspirin poisoning.     | 365 | — | J14(RS3) |
| 2. Paracetamol poisoning. | 367 | — | D12(RS3) |

**CHAPTER 37****FOOD POISONING****Short Essay**

- |              |     |     |          |
|--------------|-----|-----|----------|
| 1. Botulism. | 370 | 363 | D14(RS3) |
|--------------|-----|-----|----------|

**Short Answer**

- |              |     |     |                              |
|--------------|-----|-----|------------------------------|
| 1. Botulism. | 370 | 363 | J07(RS2), J13(RS3), D07, J12 |
|--------------|-----|-----|------------------------------|

**CHAPTER 38****APPENDIX****Short Essays**

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|-----------------------------------------------------------------------|-----|----|--------------------|
| 1. Discuss Consumer Protection Act as applicable to medical practice. | 373 | 26 | D08(RS2), D12, J13 |
|-----------------------------------------------------------------------|-----|----|--------------------|

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	NYNRD	SNGY	
2. Workman's Compensation Act,	373	28	D16
3. PNDT Act.	374	25	D16(RS3)
4. Human Organ Transplantation Act of 1994.	375	24	J14(RS3), J02, J11, D12

**MISCELLANEOUS****Short Essays**

1. Applications of radiology in forensic medicine.	—	—	D10(RS2)
2. Falanga.	155	101	D11

**Short Answer**

1. Nephrotoxic drugs.	—	—	J07
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